COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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Volume 22 NEW YORK, THURSDAY, SEPTEMBER 21, 1922 Number 12

Congress and Price Control

AN ACT of Congress extending the powers of the Interstate Commerce Commission to permit the granting of priorities in transportation to prevent the purchase or sale of coal "at prices unjustly or unreasonably high" is now or soon will be the law of the land. In so far as it pertains directly to price control this is the extent of the coal-control bill urged by the administration and as framed "on the hill." The Federal Fuel Distributor, an officer created by the act, is empowered to ascertain, among other things, the prices normally charged for coal and the prices correctly charged and whether current prices, "considering the costs of production and distribution, are just and reasonable."

Nothing is said in the act about fixing maximum prices. The inference is that arbitrary limits for prices will not be set by the government. Every time the government has set maximum prices it has been obliged to defend them and the defense has been costly and difficult. It would be more than ordinarily difficult now, for the final disposition of the cases instituted by the government against "profiteers" under the Lever Act have heartened those who would take the top of the market. To define when a seller of coal takes more than a reasonable price and becomes a profiteer is more of a task than to define "socialism." Those, for instance, who took issue with the navy over the price at which its coal was commandeered were able to regain substantial amounts through the courts.

No price can be set for the product of a particular field that is within reason as respects the majority that is not below the cost of a small portion of the production. Should the Federal Fuel Distributor and the Interstate Commerce Commission attempt to say what price should be charged for all the coal from any field, these high-cost producers would, it appears, have a clear case in court to prevent the application of the price. A consideration of the official statements of those who appeared before the House committee when the bill was pending leads one to expect rather that Washington will endeavor to avoid some of the pitfalls previous attempts at price fixing have disclosed and will steer a course designed to put the offending "profiteer" entirely on the defensive. It is obvious that individual instances of "unjustly high and unreasonable" prices may be uncovered if the expected spurt in the market develops, instances with respect to which it may be possible to establish that the price level is opposed to the public interest. The penalty, denial of cars in which to ship further coal, is sufficiently severe to dampen the superlative price ambitions of others when once the offense is defined and the penalty successfully applied.

Seemingly it would be difficult to maintain the position that charging a price, however high, that was mutually satisfactory to both buyer and seller is in violation of the general welfare clause of the Constitution or interferes with interstate commerce, the legal back logs of the legislation. Such disruption to distribution as undoubtedly would follow unfettered selling at "mutually satisfactory" prices could be corrected by the exercise of priorities in cars. If field prices are not fixed under this legislation, we may then expect a multitude of car priorities. From the standpoint of the producer, the transporter and the consumer, priorities are infernal nuisances. They are possible of terrific abuse. They interfere with the movement and therefore with the production of coal. The Fuel Administration hung itself high and dry through the initiation of this practice in the early months of its régime and abandoned the method at the first opportunity.

There is a string in this coal-control bill that is new. He who buys coal at "unjustly high and unreasonable prices" is as subject to the penalty of embargo as is the seller to the denial of cars. We may yet be treated to the spectacle of an industrial plant or railroad closed down by order of the government as penalty for tempting the coal operator with too much money for his coal.

In between the producer and consumer there may be the wholesaler or jobber who does not physically handle the coal or the car in which is is loaded and is transported. He cannot be denied cars, for he does not ask for them and he cannot be embargoed if his name is not on the consignment. Heretofore in a strong buyers' market with fixed limits on price the tendency has been to short-circuit the middleman. He may be found useful this time in facilitating the "bootlegging" of coal.

The legislative remedy is unique. It doubtless goes as far in controlling price and distribution as the government considered it has the power to proceed. Its effectiveness will not really be tried until the market is much more active than at present, when the Federal Fuel Distributor and the Interstate Commerce Commission will require for their arduous task all the sympathy and support they can muster.

The "Conspiracy" of March, 1922

"OPERATORS and miners *conspired* to cause this strike in order to boost prices." How often is this loose charge heard in the byways—and even in high places! There is no use denying that today it is given general credence. Many a good man and true is convinced in his own mind that there was a conspiracy against him in March, 1922, and that the battles of Cleveland and Pittsburgh and the skirmishes of Chicago, Terre Haute, Kansas City and other points were fought purely for moral effect upon the American people. It is difficult for such average citizens to listen today to coal quotations from their dealers without becoming more definitely convinced than ever. They cannot see, for instance, the logic of the operators'

argument that the heavy cost of mine idleness should be borne by coal not being mined, apparently forgetting that mine maintenance, property depreciation and interest on indebtedness take no notice of strikes and that, since coal is all the operator has to sell, it must bear the entire cost of its production.

Did operators "conspire" to strike prices upward? Turn back to March, 1922, the last month of pre-strike operation. Industry and the demand for coal were at low ebb. Summer was coming on with its accompanying slack market for fuel. Non-union operations throughout the country had a producing capacity of 5,000,000 tons a week. Stocks in the hands of consumers were at unprecedentedly high levels. The wildest industrial optimist could not honestly prophesy that the country would need more than a minimum weekly volume of coal until fall. There was no sound reason to expect that transportation would be hamstrung and the flow of non-union coal choked. Railroad strikes had loomed before—and collapsed. If ever a time was unpropitious for union labor to quit work, if ever the omens were ill for a long or successful strike of miners, that time was the end of March, 1922. How could a strike at such a time be counted on to boost the price of coal enough to compensate for the inevitably heavy expense of labor strife and non-operation?

This is not to deny that operators generally welcomed the strike of March 31. The non-union producers were well satisfied to be in undisturbed possession of the market. The union operators welcomed it mainly because they hoped that out of the conflict would emerge a new set of wages and working conditions that would deflate the cost of coal not only to themselves but to every coal consumer as well. They were seeking opportunity to meet the non-union field competition with lower cost coal. It is true also that operators in certain sections welcomed it as an opportunity to regain once more from the union the control of their own business. It is equally true that many an operator who had been selling coal below cost said frankly that he didn't care if his men did strike, for he couldn't go on doing business "in the red" forever. But the circumstances and events of the day were not those of conspiracy to boost prices.

Then came the summer. Railroad strikes with their accompanying car and power shortages, the exhaustion of industrial and railroad fuel supplies and other developments over which the operators had no control combined to increase the price of coal. After the resumption of mining the market subsided somewhat but whereas the average spot price of all coals near the end of March was $2.05, today it is just above $5. This is proof enough for the man who charges conspiracy. He looks no further. The circumstantial evidence appears damning. But a fair consideration of the facts of March, 1922, should clear the operators in spite of flagrant offenses by some among them. Coal is high but a "conspiracy" of operators to put it there by strike is yet to be proved. In view of their inability to stick together on any program or project, the charge is one of those of the "interesting if true" variety.

A THIRD STRIKE would put us out.—*Wall Street Journal.*

AS NEARLY AS WE can figure it, a living wage is pay sufficient to enable you to strike a couple of months each year for a living wage.—*New York Tribune.*

Haulage Accidents

FROM dangers resulting from the weakness of the mine roof we can never hope to be entirely free. There always will be a degree of risk in excavations of this kind. It is true something nearly approaching absolute safety might be found in measures such as forepoling, cribbing and square setting, but the cost of mining then would be prohibitive. Such plans even in building subways are not found to be universally successful in the entire prevention of accidental death.

In mechanical details such as hauling, however, it would appear possible to make accidents less frequent. Why do we have so many derailments? Surely a little testing would reveal a loose wheel in some less significant way than is afforded by the wrecking of a trip. On well-conducted railroads how rarely do trains leave the track and how seldom do cars pile up in the ditches! Something surely might be done to reduce such accidents in mines and also to make coupling accidents less frequent.

These protective measures are engineering problems, but unfortunately our mechanical and electrical engineers are not often consulted in their solution. Our mine managers, who try to answer them, are mostly better skilled in coal mining proper than in transportation problems, and our mine inspectors usually are men who have not studied engineering and whose upbringing has been in manually operated mines with mule haulage.

The mechanization of the mines involves problems in safety that only mechanical engineers can solve. We must look, at least partly, to such men to perform our inspection work. We may have to employ two kinds of inspectors if we are going to follow out in our methods of inspection the lines of development of our mines and the present practice of the coal companies. At well-ordered plants there is either a power and mechanical engineer or one engineer for mechanical and another for electrical problems. No attempt is made to leave these difficult subjects to men without such professional training.

In all inspection little attention is paid to the rolling stock or any other kind of machinery. The mine inspectors are supposed to supervise such matters, but they are not trained for that purpose, so they find their way rapidly to the working faces, of which their previous experience makes them the more competent judges.

The great advances in safety have mostly been made by engineers, and it has been found that being safe pays, not alone in freedom from accident and compensation charges but usually in economy also. Two instances may be given: When careless handling of lead caused many deaths in the lead industry, the engineers devised ways of keeping the lead out of the air and the devices used made the cost of handling so much cheaper that the change could be measured not only in lives but in profits also. When bandsaws were bursting and killing men in sawmills, frequent sharpening was recommended by engineers as a means of reducing the strain on the saw.

The result was a reduction in lives lost, fewer men injured, fewer broken saws and a greater output per man and per unit of power. A dull saw is an uneconomical unit at best. In a similar way due attention to the safety of mechanical haulage probably would save both lives and dollars.

Manner of Operating Electrical Apparatus in the Automatic Substation at Van Lear, Ky.*

Station Is Set in Operation and Shut Down by Action of Time Clock—Detailed Description of Its Self-Acting Regulatory Devices—After a Month of Tuning It Needs No Further Regular Attention

IT IS safe to say that in the mining industry central power, either bought, pooled or made by the coal company itself, has come to stay. The automatic underground substation for 250-volt direct-current operation will year by year supersede the old heavy feeder system, and the 600-volt system with its heavy maintenance cost will go with the feeders. This evolution will be hastened by the greater risk to life of such high voltages and by the legislation which such risks are likely to put on the statute books.

A station of the type suggested is that furnished by the Westinghouse Electric & Manufacturing Co. and installed by the Consolidation Coal Co. in its Millers Creek Division, Van Lear, Ky.

This station was put in operation Jan. 12, 1922. It has now been in operation a little over seven months, and with the exception of the first month of operation, during which time the station was given daily attention by a man who was acquainted with the workings of the switchboard, this attention being required to adjust the different relays for load conditions, only weekly and sometimes semi-weekly inspection of this equipment has been made. The mine foreman, who was a mine electrician for many years, has a key to this station, looks it over once or twice a day and at any time when he happens to pass the door.

The Consolidation Coal Co. has five mines in this division, numbered 151, 152, 153, 154 and 155. The automatic substation is located inside of Mine No. 154, a distance of about 4,400 ft. from the pit mouth. The drift mouth of Mine No. 153 is located on the opposite side of the valley about 1,000 ft. from that of Mine No. 154. A substation, equipped with two 150-kw. motor-generator sets, is located about midway between the two openings. For a number of years both of these mines were supplied with 250-volt direct-current power from this one substation, but the working places in Mine No. 154 advanced so far away from this substation that it soon became necessary to consider some means of bettering the power at this mine.

The problem was solved by installing a 150-kw. motor-generator set inside the mine about 4,400 ft. from the drift mouth and about 5,000 ft. from the outside station. Both stations were then operated in parallel. In order to take care of any emergency that might arise the inside substation was given the entire time of an attendant. Conditions made it impossible to give him any other duties such, for instance, as looking after a pump, so his whole salary had to be charged against this substation. This was a heavy item and made the direct-current power at this station rather costly.

After the station had been in operation for about three years an outside substation located at the entrance to Mine No. 155 became overloaded, so it was necessary to get more power. This substation had only one 150-kw. motor-generator set, which was a duplicate of the one installed in the underground station in Mine No. 154; so it was decided to move the 150-kw. motor-generator set from the underground station in Mine No. 154 into the substation at Mine No. 155, making the capacity of this substation 300 kw.

This move having been decided on, it was necessary to plan for a unit for the underground station in Mine No. 154, and having in mind the high operating cost of the manual substation at this point, it was decided

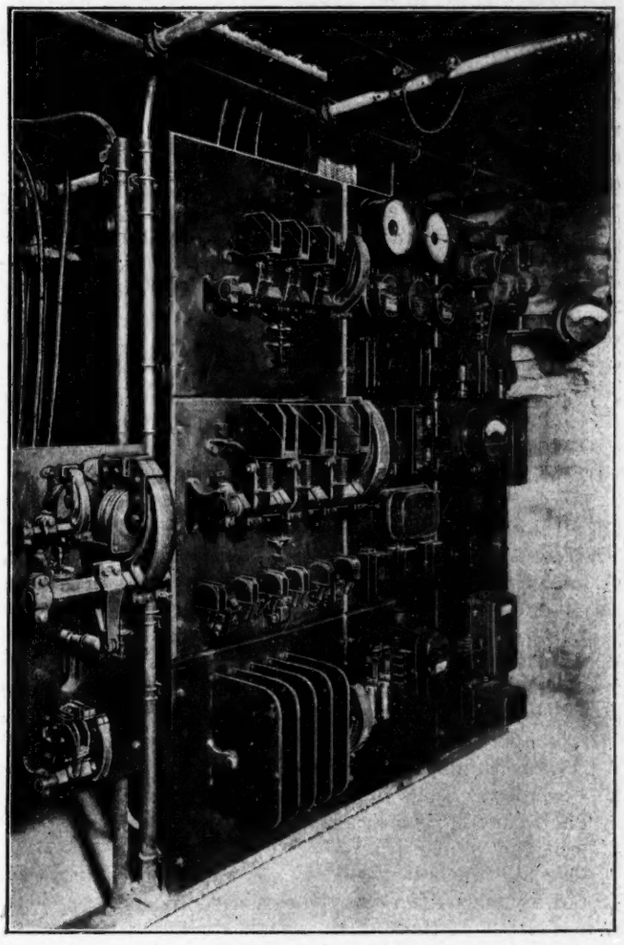


FIG. 1—COMPLETE SWITCHBOARD FOR AUTOMATIC CONTROL OF SYNCHRONOUS CONVERTER STATION

This is the switchboard installed at the Van Lear (Ky.) plant of the Consolidation Coal Co. On the first panel are the operating levers, the break contactor (interlock No. 2), the field contactor and the disk interlock; on the second, two measuring instruments and ten relays, the make contactor (interlock No. 2), a knife switch and a watt-hour meter; on the third panel, the disk interlock, two relays, a watt-hour meter and another relay. The breaker panel is on the left.

*Second part of report of committee on underground transmission and distribution presented at the session of the West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers, Sept. 20, at its session in Huntington, W. Va. The committee consists of C. J. Fuetter (chairman), M. H. Powell and H. E. Carlton. The first part, entitled "Economical Methods of Transmitting Power Underground," appeared in last week's issue of *Coal Age*.

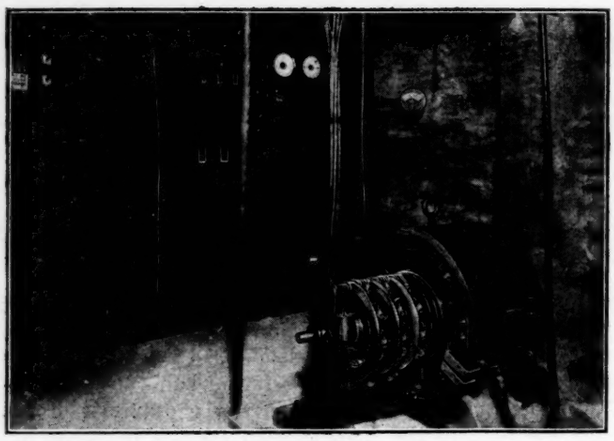


FIG. 2—VIEW OF AUTOMATIC SUBSTATION

Shows the 150-kw. 275-volt converter with control. This installation is located in a room approximately 5,000 ft. from the mine mouth.

to install one that was automatic, so a 150-kw. synchronous converter with three 55-kva. transformers and a full automatic switchboard were purchased. The equipment complete was received in about seven weeks after placing the order and, as already stated, was put under load Jan. 12, 1922.

This automatic substation is run in parallel with the outside manually operated substation, the distance between the two substations being about 5,000 ft. The room in which the automatic substation is located is about 20 ft. square with a cement floor. The walls and ceilings are of natural rock, which received a heavy coating of cement applied with a cement gun. The current is brought down to the station through a 122-ft. borehole by a three-conductor No. 2 stranded cable. Each conductor is covered with $\frac{3}{64}$-in. varnished cambric insulation, and the three conductors are then covered with the same insulating material. This is coated again with a lead-sheet covering $\frac{3}{64}$ in. thick, a wire armor jute and asphalt finish being laid over all. This makes the outside diameter a little over 2 in. This cable furnishes the transformers with 4,000-volt three-phase current.

The operation of the automatic substation is regulated by an eight-day time clock so set that the station will start at 6:15 a.m. and shut down every day at 4 p.m. At any time after the station closes down its operation on the following day can be prevented by pulling the main operating switch 19. As it is not necessary to operate the station on Sunday, a certain pumper has been detailed to pull this switch. In order to arrange for the starting of the station on Monday morning, the pumper puts back the switch at any time after 4 p.m. on Sunday. He also winds up the clock on Sunday evening.

The following is a description of the scheme of operation of this station:

This station is designed to start either by the pressing of a push button or by the operation of a time clock. When either of these devices makes contact, the station starts, comes up to speed, straightens its polarity if necessary, applies full voltage from the transformers, and connects itself to the direct-current load. Although this converter is a commutating-pole unit, the brushes are not raised during the starting period.

The various relays and contactors are so connected and interlocked that they will perform the same operations as the attendant does in a hand-operated substation. Of course, everything must be right electrically before the next step is started. After the unit is on the line delivering energy to the load, protective relays will anticipate every electrical condition and secure it against external or internal damage.

In a manually operated substation the operator goes through the following routine in putting the converting unit on the line: (1) He closes the line oil circuit breaker, thus energizing the power transformers; (2) he closes the starting switch, putting low voltage on to the converter rings, the unit coming up to synchronous speed; (3) he watches the direct-current voltmeter as the slip approaches zero and makes the armature slip a pole by reversing the shunt field circuit in case the voltage is "upside down"; (4) he transfers from the starting to the running switch when the direct-current voltmeter reads in the right direction and (5) he closes the carbon circuit breaker and knife switch in the direct-current outgoing line.

By referring to the schematic diagram, Fig. 4, or to the wiring diagram, Fig. 5, it will be seen that the automatic control equipment goes through the same routine as fast as the electrical conditions permit.

As the push button of the time switch makes contact the circuit of the master relay *3-A* is completed, and the relay closes. This circuit is from one side of the operating transformer *A*, through contact *7-A* on the polarized motor relay, through resistance *R1*, through the operating coil of *3-A*, through the overspeed device, and through the push button of the time-switch contact to the other side of the operating transformer *B*.

Machine Follows Manual-Control Methods

The master relay *3-A* has but a single contact which is in series with relay *3*. Hence the latter relay closes as soon as the master relay *3-A* makes its contact. This action locks in the master relay *3-A* by paralleling the contact *7-A* by a contact on relay *3*. That relay, through another contact, energizes the *A1* bus. Thus circuits are set up so that the starting operation may begin. As stated before, this sequence follows the same lines as with the manual control already described:

(1) The line oil circuit breaker closes. This operating unit consists of the three operating coils *20*, *21* and *22*. This mechanism is shown in Fig. 3. It consists of the main closing magnet, *20;* the latching magnet, *21*, and an auxiliary contactor, *22*. This contactor closes as soon as the *A1* bus is energized. As contactor *22* makes contact, the main-coil circuit of *20* is completed, and the breaker is closed. The latching magnet *21* is energized as the breaker goes in. The breaker is mechanically held in this position as long as *21* is energized. An interlock on the latching contactor opens the coil circuit of contactor *22*, which, as that contactor opens, de-energizes the main closing coil, *20*. Thus the breaker closes, latches in mechanically and cuts off its own main closing circuit.

(2) The starting switch, *6*, closes. This is accomplished through the closing of relay *4*. The circuit of this relay is interlocked with both relay *19* and the running switch, *11*. Thus starting voltage is applied to the converter rings, and the converter starts and comes up to speed. During this starting period the commutator end of the converter has an alternating voltage of the frequency of the slip across its terminals.

(3) As the slip approaches zero, or the unit pulls into synchronism, a direct-current voltage is established

on the commutator. The polarized motor-driven relay *7* is connected across the direct-current end as long as the starting switch is closed. This relay has a permanent magnet field, so that its direction of rotation depends on the direction of current through the armature circuit. In case the unit "pulls in upside down," the current through the armature will be in such a direction as to rotate toward and make contact *7-D*. The closing of this contact affects that of a multicontact relay, *9*. This action energizes the four-pole double-throw contactor, *10*, which reverses the shunt-field connection on the converter.

The shunt field is divided into halves, the two parts being in parallel when the field reversing switch *10* is energized. The converter armature is then forced backward until the midpole position is reached. At this point the direct-current voltage is zero and the multi-contact *10* drops out. The field-reversing contactor is de-energized, and the normal field connection is restored. The converter armature continues through the midpole position and again synchronizes with the correct field-pole rotation.

The right direct-current voltage is now on the commutator and relay *7* runs in the opposite direction to make contact *7-B*. This action completes the circuit of transfer relay *19*, which, upon closing, opens relay circuit *4* and completes its own holding connection. Thus it is seen that the polarized relay *7* operates to effect the transfer from the starting to the running switches only when the direct-current voltage of the converter as it pulls in step is found to be in the right direction.

(4) Through the opening of the contact of relay *19* in the operating coil circuit of relay *4* that relay is opened, which in turn opens the starting switch *6*. An interlock on the starting switch makes contact as that switch opens and completes the circuit of field-control relay *5*. This relay closes the running switch *11* and short-circuits a resistance in series with the shunt field of the converter. Full direct-current voltage is then available on the converter terminals.

(5) The converter unit is now ready to be connected to the direct-current line. Field relay *38* is a series relay which picks up as full voltage is applied to the alternating-current rings when running switch *11* closes. The circuit of the service-restoring contactor *12* is now complete. This circuit may be traced from the positive terminal of the machine through a 5-ohm grid resistance, through the operating coil of circuit breaker *12*, and then through the contacts of the overload relay *12T*, a single-pole single-throw knife switch, master relay *3*, field current relay *38* and an interlock on the running switch *11* to the negative side of the machine. An interlock on the direct-current breaker *12* bridges the contact of relay *3*, which connects the *A* and *A1* buses.

The converter will now deliver energy to the load until it is shut down by the push button or time switch, or some protective device. The total time re-

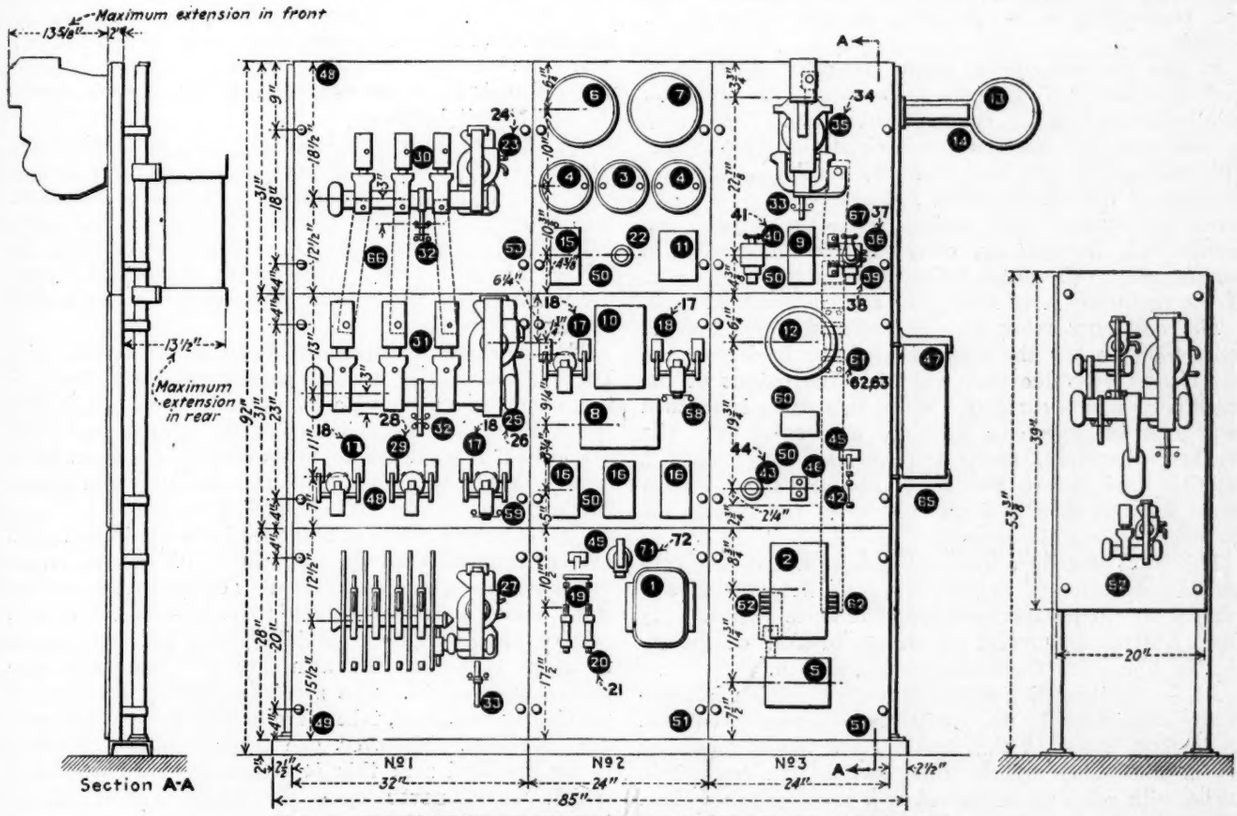


FIG. 3—FRONT VIEW OF SWITCHBOARD WITH PARTS LETTERED

1 and 2, watt-hour meters; 3 and 4, relays; 5, reverse-current relay; 6, ammeter; 7, power-factor meter; 8, polarized motor relay; 9, special relay; 10, balance-phase relay; 11, multicontact relay; 12, direct-current ammeter; 13, direct-current voltmeter; 14, swinging bracket; 15, lockout relay; 16, thermal relay; 17, contactor; 18, coil for same; 19, knife switch; 20, fuses; 21, fuse clips; 22, ammeter switch, 23, contactor; 24, coil for same; 25, 500-amp. contactor; 26, coil for same; 27, field contactor; 28, contactor; 29, coil for same; 30 and 31, operating levers; 32, disk interlock M to B; 33, disk interlock B; 34, 1,250-amp. contactor; 35, coil for same; 36, relay with latch; 37, series coil for same; 38, studs for preceding; 39, reset coil for item 36; 40, relay without latch; 41, shunt coil for same; 42, 60-amp. 250-volt knife switch; 43, voltmeter switch; 44, key for same; 45, card holders; 46, Perkins pushbutton; 47, Anderson time switch; 48 to 51, slate slabs; 52, breaker panel; 53, mounting bolts; 54, pipe and flange; 55, single mounting bracket; 56, double mounting bracket; 58, make contact (interlock No. 1); 59, break contact (interlock No. 3); 60, name plate; 61, Weston shunts; 62, shunt supports; 63, shunt lead holders; 64, terminals; 65, mounting bracket; 66 and 67, C-straps; 69, bracket; 70, pipe end; 71, contactor; 72, 220-volt, 60-cycle coil for same.

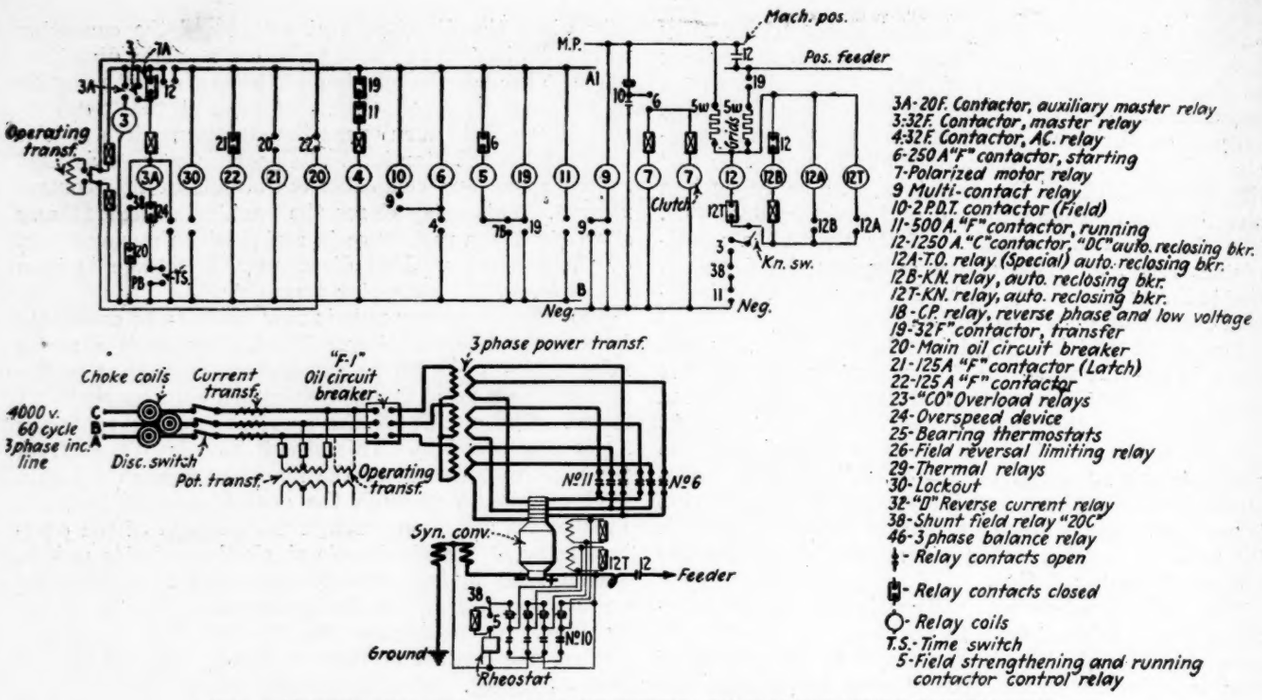


FIG. 4—SCHEMATIC DIAGRAM OF SWITCHBOARD ILLUSTRATING CONNECTIONS

This gives a clearer idea of the connections than can be afforded by the elevation of either the front or the back of the switchboard.

quired for the foregoing operation of starting the unit and connecting it to the line is approximately 12 seconds.

In case the load on the motor-generator set rises to such a value that it would be advisable to open the direct-current breaker, the overload relay *12T* will pick up and open the operating coil circuit of breaker *12*. This disconnects the load from the machine. The resistance of the circuit being fed must rise to a point where the breaker may reclose and stay closed. The breaker *12*, in opening, completes the circuit of a timing relay, *12B*, which makes a contact in the circuit of the restoring relay *12A* after a predetermined time.

The restoring relay *12A* is calibrated to close its contact only when the resistance of the feeder section has risen to a value that will limit the output of the machine to a safe capacity. When this value is reached relay *12A* energizes the reset coil of breaker *12*. The breaker, therefore, opens on overload, stays open a definite time before the resistance-measuring circuit is set up and then recloses only when the reason for the overload has disappeared.

The usual procedure in shutting down a manually controlled substation is as follows: (1) Trip the direct-current circuit breaker and open the knife switch. (2) Open alternating-current oil circuit breaker of the incoming line. (3) Open the running switch.

As in starting up, the shutting-down action is practically duplicated by the switching equipment. When, as is most usual at this station, the motor-generator set is shut down by the time switch, the contact in series with relay *3A* is opened at a predetermined time. This relay in dropping out opens relay *3*.

(1) Although relay *3* opens its contact between the *A* and *A1* buses, the connection is retained by an interlock on direct-current contactor *12*. However, as relay *3* opens, one of its contacts opens the circuit of contactor *12*, causing it to drop open. Thus the direct-current end of the converting unit is disconnected.

(2) The action of disconnecting the direct-current load, just described, opens the bridging contactor *12* between the *A* and *A1* buses and de-energizes the *A1* bus. The holding contactor *21* on the oil circuit breaker mechanism is therefore opened, and this, in turn, opens the coil circuit breaker.

(3) The running contactor *11*, with its control relays *5* and *19*, also drops open as the *A1* bus is disconnected from the transformer. It will be observed that relay *5* in opening inserts a resistance in series with the shunt field of the converter, thus causing the voltage to fall rapidly. This makes it possible to get back on the line in three or four seconds in case of a momentary outage.

The protective features also should be described: (1) Lockout relay *30* is used to permanently lock the station out of service until a maintenance man has visited the station, located and remedied the trouble and reset the lockout relay by hand. This relay is operated when something has happened inside the station which makes further operation of the equipment hazardous.

(2) Overload relays of standard induction-motor type are set to operate on short-circuit in the converter, on transformers or in case of flash-over on the direct-current end. When a flash-over occurs the unit is not put in service again until an insulation test has been made to make sure that the armature has not been permanently damaged. The service restoring breaker, as previously described, takes care of legitimate direct current overload. However, one other condition remains to be provided for; this is continued small overloads which would never open the direct-current circuit breaker but would overheat the machine windings if allowed to continue long enough. Thermal relays *29* furnish this protection and simply shut down the unit until it has cooled sufficiently that it may be allowed to start again without injury.

(3) In case a phase opens while the unit is running and the load is of sufficient magnitude to overheat the

converter, the unit is locked out of service by phase balance relay *46*. This action may be made selective so that the relay will lock the station out in case of phase failure on the low side of the power transformers and will simply shut the station down in case of phase failure anywhere on the incoming high-tension line. A polyphase low-voltage relay, *18*, will then hold the substation out of service until three-phase voltage is again available. Thus this relay prevents the station from starting with single-phase high-tension line current.

(4) A contact-making thermostat is located on each of the main converter bearings. These thermostats are mounted on the pedestals, and the operating tubes are inserted in holes where they touch the outer surface of the babbitt. The heat drop through the babbitt is small, and the unit is locked out of service before any damage is done to the bearing surface. As a rule after a little scraping the overheated bearing may be returned immediately to service.

(5) If the overspeed reaches 15 per cent the standard contact-opening overspeed device permanently opens the coil circuit of the master relay *3A*. This device must be reset by hand, and for this reason its operation locks out the apparatus.

(6) Eighty per cent of normal high-tension voltage must be available for starting the station or it will not start. This applies to the converter as well as the various alternating-current relays and contactors. The polyphase low-voltage relay *18* is calibrated so that it closes its contacts at all voltages below 80 per cent of normal and by short-circuiting the coil of master relay *3A* prevents the unit from starting.

(7) In the same way the polyphase low-voltage relay *18* shuts the station down in case the high-tension voltage drops below 80 per cent of normal. In case of momentary "high-line" outage, the station would shut down and come back immediately upon restoration of normal voltage. To make sure that there can be no false electrical indications during a rapid restart, a short-circuit is put on the coil of *3A* by contacts on the oil circuit breaker *20* and the shunt field series relay *38*. This prevents restarting until the voltage of the converter falls to a point where relay *38* will open. All this requires but two seconds, for resistance is inserted in the shunt field circuit when shutting down. This same connection shuts the station down in case the circuit breaker opens for some unusual reason while the unit is operating. While this condition is unlikely with this type of circuit breaker, it is important that such a protection be provided.

(8) A standard reverse-current relay is used to shut down the unit should the current reverse.

(9) If the circuit in the shunt field of the converter be opened the unit will fall "out of step" on small direct-current load. It is important that the direct-current load be disconnected at this time. A contact of shuntfield circuit *38* is, therefore, placed in series with main direct-current breaker *12*, which removes all load from the converter as relay *38* opens.

The switchboard of this unit is equipped with the

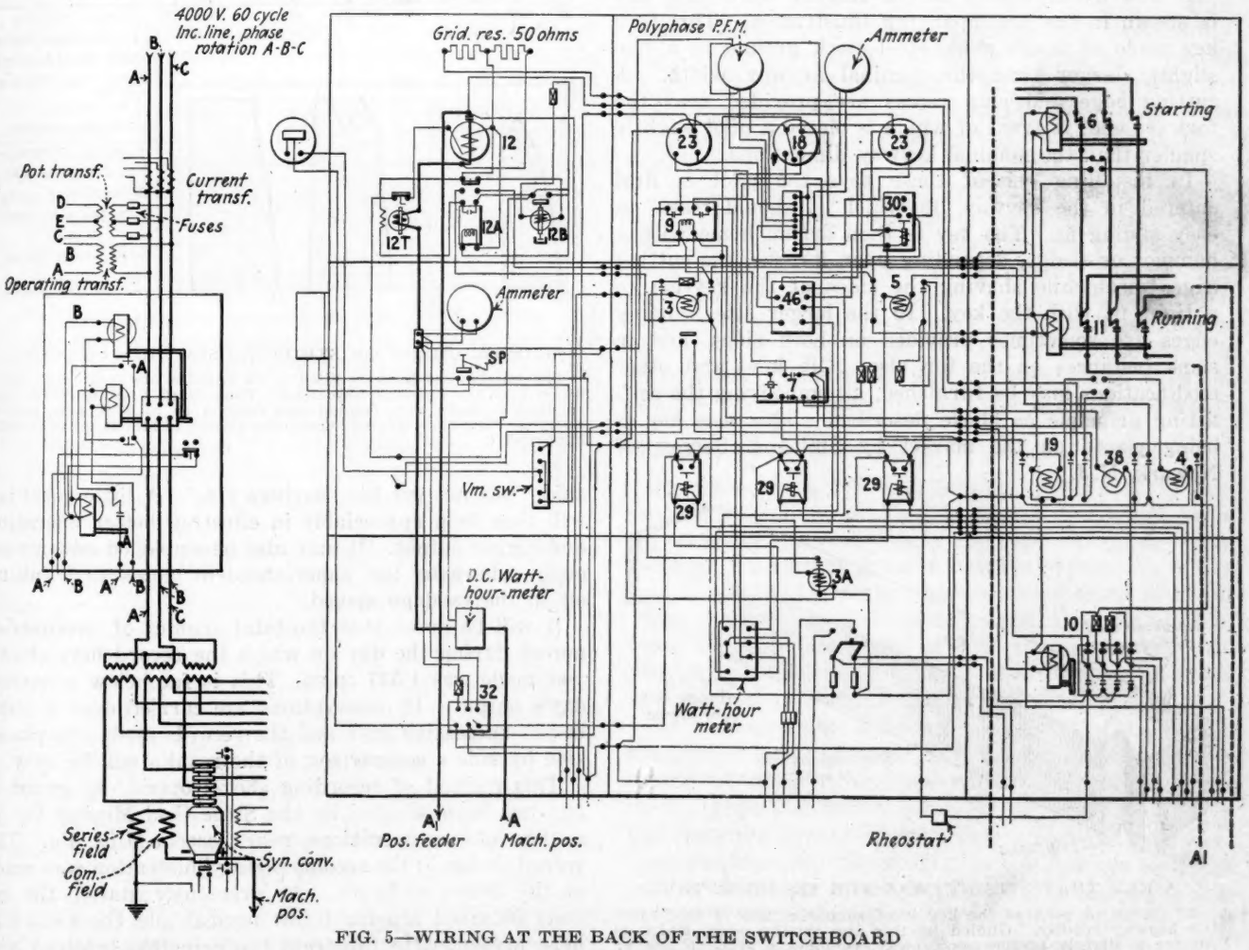


FIG. 5—WIRING AT THE BACK OF THE SWITCHBOARD

Letters and figures do not have similar significance to those in Fig. 3 but agree with those in the text and in Fig. 4.

following instruments: One direct-current voltmeter, one direct-current ammeter, one power-factor meter, one alternating-current watt-hour meter and one direct-current watt-hour meter.

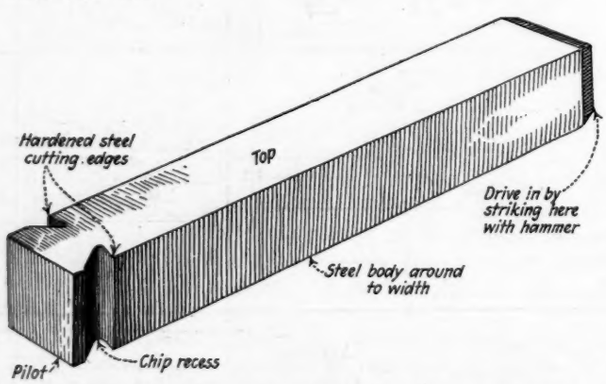
At the time the above automatic substation shown in Figs. 1 and 2 was installed another automatic substation was erected by the Consolidation Coal Co. at its Frostburg mine, in the State of Maryland. This station consists of two 150-kw. 275-volt direct-current synchronous converters. The Van Lear and Frostburg automatic stations have given such excellent results that another automatic substation has been installed by the above company in its Elkhorn division, at Jenkins, Ky. This station is practically a duplicate of the Frostburg two-unit installation.

Self-Fitting Key Enlarges Its Own Seat

KEYS of various descriptions are well known to those familiar with machinery. They are employed as a rule to hold firmly together a shaft and some machine part or member (such as a wheel) encircling it. In applying this fastening it is customary to cut a keyway, either by milling or by chipping and filing, in both shaft and wheel and to fit the key to place. This latter operation usually has been a hand job, the key being filed or scraped to size or the keyways similarly treated. In many instances it has been a long, laborious process, the effectiveness of which has not always been all that could be desired.

A new device known as the Keytite self-fitting key is shown in the accompanying illustration. This is a key made of tough chisel-steel stock ground to a size slightly larger than the nominal keyway width. A cutting edge and chip recess are provided near the forward end, in front of which is placed a pilot slightly smaller than the nominal keyway dimensions.

In installing one of these keys the pilot is first entered in the keyway, in which it should make an easy sliding fit. The key is then driven home with a hammer or sledge, depending upon its size, the cutting edges meanwhile shaving the sides of the keyseat to a tight fit with the key. In the larger sizes cutting edges are sometimes provided on both sides, and in some instances on the top also. Gib keys and other modifications may be furnished, all embodying the self-fitting principle as above described. This new key is being placed on the market by Smith & Serrell, of Newark, N. J.



A KEY THAT FITS KEYWAY FOR ITS RECEPTION

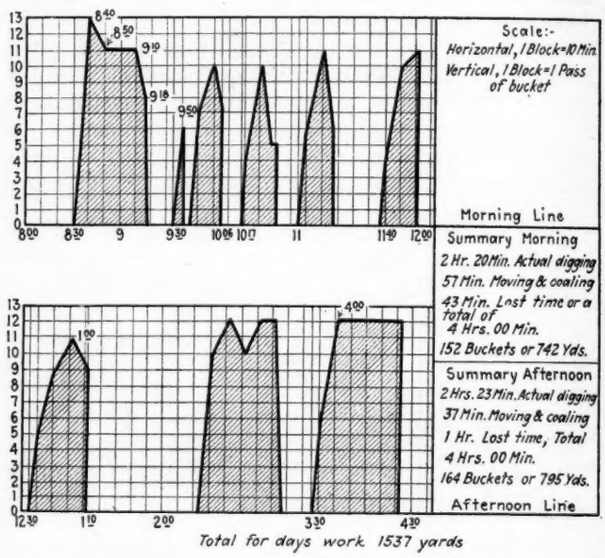
The front or pilot of the key is of such size that it will enter the keyway readily. Guided by this the cutting edge, which is set for a slightly larger passageway, removes a chip on one or both edges, rolling it into the recess provided between the pilot end of the key and the key proper.

Graphic Time Study of the Efficiency of A Shovel Removing Overburden

GRAPHIC records possess an advantage over those of tabular form chiefly in that they show their results almost at a glance. When prepared to show the performance of a coal-stripping shovel they exhibit plainly whether the machine is doing what may be logically expected of it and whether it is attaining its maximum efficiency. A record of this kind is shown in the accompanying illustration.

To make such a record the observer, watch in hand, notes the number of shovel dips made during any given time interval. He is in a position to decide whether any decrease in the speed of operation arises from unusually difficult digging or is the fault of the machine crew; whether delays encountered at any given time are warranted and how and by what means better efficiency can be attained.

This system is especially useful when a stripping operation is first started. At such time the shovel operator is not accustomed to the operation or, as it is



GRAPHIC CHART OF STRIPPING-SHOVEL OPERATION

The numbers of buckets filled in 10 minutes are plotted as ordinates and the time as abscissas. Thus from 8:30 to 8:40 a.m. thirteen buckets were loaded and from 8:40 to 8:50 a.m. eleven buckets. The time during which the shovel is idle is quite clearly apparent.

said, "has not got his bearings yet." A little coaching will then help appreciably in effecting better operation and bigger output. It may also be employed advantageously whenever the superintendent notes any falling off in the yardage moved.

It will be noted that the total amount of overburden moved during the day on which the record here shown was made was 1,537 cu.yd. This is far below a normal day's output. If observations are carried over a number of successive days and the records made are placed side by side a comparison of the results will be easy.

This method of recording shovel operations graphically has been adopted by the Stine Coal Mining Co. in its Shoveltown operations, near Osceola Mills, Pa. The record shown in the accompanying illustration was made at the firm's strip pit. As previously stated, the results obtained are far below normal and the record is here presented to illustrate the principle involved and not to show a phenomenal movement of overburden.

How Mechanical and Electrical Engineers Can Increase Their Usefulness in the Operation of Mines*

Rapid Evolution of Electrical Engineer—Economies Possible Where Unit Cost of Every Operation Is Known—Cost Sheets Help Management to Determine Relative Upkeep of Machines and Efficiency of Repairmen

By W. C. Shunk
Big Stone Gap, Va.

ONLY a little more than two decades have elapsed since electricity was first introduced in a crude way for power purposes at collieries. A short time prior thereto the electrical engineer was completely foreign to the personnel of any coal-mining organization. Since then, however, and more especially during the past ten years, he has became an important and essential figure at the mines.

During the early days of the electric mine locomotive and the coal-cutting machine, electricians in charge of the comparatively few electrified collieries were looked upon as being finished and qualified engineers as soon as they had become familiar with the mechanical routine of dismantling and reassembling direct-current motors of the simple series and shunt-wound types. No one expected that they would understand the principles of field and armature winding. All that was required of them was that they always use the utmost care in marking corresponding leads of the connections they opened so as to assure their proper reconnection. The average mine electrician was satisfied to follow such methods not merely for the sake of convenience but because he lacked knowledge of the paths by which current flowed through the windings and was unfamiliar with the characteristics of the mysterious electric motor and so could follow no other plan without injury to the equipment.

Electrical Engineer Does His Own Devising

Meantime a great evolution has taken place. No longer merely an electrician he is now an electrical engineer. Not only has the design of equipment been improved but the average electrical engineer has himself developed so that he now can more successfully cope with the characteristics and peculiarities of the complicated types of motors and other apparatus used today than he could formerly with the simpler equipment of earlier years.

The electrical engineers now employed in the field are better equipped from the standpoint of general knowledge because they keep in closer touch with manufacturers' designing engineers than they have ever done before. Indeed, these men in the field can not only operate the machinery entrusted to their care but are to be credited also with originating many new and highly practical suggestions as to the way in which the design of equipment could be improved.

Many able engineers are now engaged in the power departments of the coal industry, and not a few of the collieries already have in their employment or are developing men of contriving genius who have the ability to devise methods of making their electrical equipment operate more and more efficiently.

The wonderful progress made during the past ten years in coal production has been rendered possible to no small extent by the more or less complete electrification of the old as well as of the more recently developed collieries. This has created a demand for the electrical wizard and his protégé, the practical repairman.

Men in Charge Come from Three Sources

The vast expansion in the use of electrical energy along with the proportionate growth of the coal industry has demanded the attention and services of some of the most eminent engineers and technical men of our country. Many of the men emerging from our colleges and universities also have been absorbed directly by the operating end of the electrical and mechanical professions. In addition to these, a surprisingly large number of electrically inclined young men, particularly those of the so-called "self-made" type, have passed through the school of practical experience, having begun in an elementary way and having risen to positions where they can perform services of real worth to their respective companies.

Nothwithstanding the dependable and efficient equipment and apparatus introduced during the recent past, which requires only a little attention and repair, there is still a marked demand for competent electrical and mechanical engineers in the coal-mining industry. This arises from an increase in mine electrification, the displacement of other means of transmitting power, the installation of new plants and the substitution of equipment of modern design for that now old and obsolete.

Difficulties Both Mechanical and Electrical

Men now connected with mining operations are confronted with many perplexing problems of which their predecessors of a half decade ago never dreamed. They range in importance from the simple application of the incandescent lamp to the complex undertaking of erecting and maintaining a modern central-power station. Between these extremes at the average colliery lie problems of many degrees of complexity, for all types of equipment have their peculiar difficulties.

As most electrical problems to be met are in a degree mechanical, and vice versa, it is becoming the prevalent custom of mine managements to select some one man to supervise the whole power department, seeking to find some one person adept in both mechanical and electrical engineering. Exceptions to this rule can be found only in the plants of the largest mining companies and then only when the nature of operation lends itself to the major use of mechanical equipment. Generally speaking, therefore, men who would be successful should

*Article entitled "How Mechanical and Electrical Men Can Increase Their Usefulness and, Therefore, Become More Important Figures in the Organization," presented at the meeting of the West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers, Huntington, W. Va.

be skilled in both the professions and should study and gain experience in both branches of the industry.

It might be well here to call to the especial attention of electricians who shoulder the responsibility of supervising the installation and maintenance of mining machinery that a lack of knowledge and interest in machinery of the reciprocating type is becoming rather prevalent. Since the advent of the central power station and the consequent abandonment of the small isolated power plant and its reciprocating steam engine the electrical engineer at mines has concentrated his efforts upon equipment of the rotary type, the mechanical characteristics of which lend themselves to extremely simple alignment. A machine of the rotary or some other equally simple type that may be substituted for the reciprocating air compressor, upon which the majority of collieries must still depend for rock and other hard drilling, as well as for many other uses, must yet be developed.

On account of their flexible application portable machines of this kind are more or less adapted to all kinds of hard drilling below ground. Recently the general tendency of compressor design has been toward smaller units moving at higher speeds. In order to insure efficient and certain operation these machines require somewhat more intelligent attention than the mechanical parts of the electric motor. Consequently they, along with pneumatic drills and tools, should not be overlooked as part of the mine equipment to be carefully studied.

Must Furnish Power But Do It with Economy

There are many ways in which the personnel of the power department can and should religiously co-operate with the mine-operating department. Of course, this co-operation should be reciprocal, but here only the duty of the electrical engineer in this matter will be referred to. Favorable earning capacity depends, of course, on costs; so, naturally, the economic aim of all reputable industry is to yield the greatest production, in a safe and sane manner, at the least possible expense per unit of production, whatever that unit may be. In coal mining that unit is the ton of coal, and accordingly the significant object is the cost per ton.

As machinery is now one of the most important factors in connection with the industry, naturally it should be one of the foremost items in cost consideration. There are many avenues in the power department through which a share of the cost per ton may leak inconspicuously. These avenues treated individually may seem unimportant and in some cases almost negligible. When viewed in the aggregate, however, because of the many machine applications involved, the loss often is found to express itself in surprisingly large figures. These so-called "leaks" really are too numerous for mention here, so their character will be only outlined and reference made merely to some of their more important phases.

One of the important ways in which the power department can co-operate with the operating officials is by preparing authentic data regarding the costs of power consumed in the various mining operations and transmitting this information to all branches of the organization concerned. Those responsible for production cost from the management down generally are eager to know all the items in detail entering into the total expense.

Unfortunately, however, at most collieries the power department has prepared itself only to submit the total cost per ton for electrical energy consumed and the number of kilowatt-hours used per ton of coal produced. This information the mine clerk can readily prepare by a simple calculation when the three quantities involved are known. In most cases the mine-operating personnel is wholly dependent on those in the power department for the more intimate power-cost information. Lacking this co-operation from the power engineer the management in many instances trails along in the dark, uninformed as to the power cost per ton for each item of the highly diversified consumption at mines.

Finding Cost of Each Individual Operation

Much benefit would be derived from a knowledge of the exact cost and the kilowatt-hours per ton consumed in ventilation, haulage, machine cutting, tipple operation and other classified items peculiar to the general average operating conditions. It would be constructive, as well as interesting, also for those in the operating department to know the power cost of operating each machine in the mines over a given period of time—in an hour or a shift, for instance.

If an employee is engaged to perform a certain class of work, his wage is rated at so much per hour, day or month, the exact rate being supposedly commensurate with his occupation, training and ability. The foreman, superintendent and their superiors know how much the services of that employee are costing per day. Why not know, approximately at least, how much it costs per day to operate any particular piece of equipment?

It is needless to say that this would be interesting indeed to everyone, even to the foreman and to the men who are operating the equipment. Such information would give the foreman an opportunity to compare the power costs of one with any other operation and enlighten the machine runner as to the real value of the energy he is consuming. It would, of course, involve much detail to follow out such a practice at close and regular intervals, but it is certainly worth while to obtain such information for distribution from time to time as convenience permits.

Those in charge of the upkeep of equipment can be of much assistance to the organization in general by lending their efforts toward obtaining reliable facts and figures regarding maintenance cost. Maintenance is a phase of operation where large sums of money may be expended without attaining the desired results. This economy depends somewhat, however, upon the knowledge and experience of the repairman and his capacity for making good, workmanlike repairs, as well as on the degree of care taken of the machine by the attendant or runner during operation. Proper supervision along these lines is as important as efficient operation, and the costs when obtained will give an indication of the places where closer supervision is needed.

Considering the variable conditions under which similar machines work, one may readily ascertain by checking up maintenance cost whether equipment is being properly operated or is working under normal or abnormal conditions, also whether it is being properly repaired. Furthermore, by it may be determined whether one machine is or is not better adapted than another for any particular service.

Some inference indeed may be drawn from close observation, but a real and convincing conclusion can-

not be obtained without a careful analysis of the cost figures. The operating force is as dependent as the power department on the facts and information obtained regarding this matter. Consequently intelligent cooperation from those familiar with power technique is of much importance to the mine manager.

In yet another and an effective way can the mechanical and electrical engineers convince other branches of the organization at their mines of the real importance of the work they are able to do. In every industry the ability to train men to the highest point of efficiency is one of the most desirable of accomplishments. This desired end may be obtained by establishing conferences at which men who have to handle electrical equipment may receive training and instruction and gain inspiration and help from the experience and ideas of other men. All this can be accomplished by group meetings and conferences.

In nearly all organizations periodical executive conferences, superintendents' and foremen's meetings are now held for a similar purpose. Their value is beyond question. Why do not the power departments at our mines hold like meetings? Perhaps they already do so in some organizations, but in all probability not as frequently as is desirable.

Another invaluable trait in a power engineer is the development of foresight. He should carefully inspect his apparatus so as to forestall interruptions of service and injury to equipment. It is well known that continuous operation is reflected directly in cost. Expensive delays have occurred, and many more will be encountered, until at last foresight and inspection have been much more highly developed than they now are. Those who anticipate trouble and are prepared for it in advance—or who, better still, prevent its coming—never fail of recognition by others. They are recognized as exceptional men.

The suggestion is therefore advanced that occasional careful surveys and analyses be made of all equipment, and that decisions be made beforehand, as far as possible, as to the procedure to be followed when a breakdown occurs, assuming that such an event is inevitable and cannot be averted. Each machine should be considered separately. To keep the wheels turning with the least delay to operation oftentimes requires real genius, and this qualification cannot be overlooked. Careful planning and forethought will correct many seemingly "impossible situations."

The importance of systematized, emphasized and relentlessly practiced inspection is nowhere more evident than in relation to the uninterrupted service of electrical and mechanical equipment. The intricate mechanism and complexity of such devices need only be considered to substantiate this statement to the full. Never was the old adage "a stitch in time" applied more appropriately than to the upkeep of machinery and its appurtenances.

The continuous operation of machines cannot be relied upon without proper anticipation, inspection and repair, for without these the process of deterioration will soon progress to the point of unpreventable stoppage. Substantial reduction in upkeep expense can be effected by adhering to the rule requiring frequent detailed inspections followed by necessary minor repairs, thereby forestalling subsequent costly replacements and probable delays.

Nothing is more desirable in the make-up of a real supervising engineer, electrician or mechanic than an ability to observe and to carry out rigid inspections. His capability along these lines should be carefully weighed and regarded as more important than many other desirable traits.

Along with the few suggestions here presented it should not be out of place to mention the importance of keeping in touch with other branches of the coal industry. Is there any fundamental reason why the progressive mechanical or electrical engineer should not share along with the mining engineer the honor of rising to executive positions in the organization? Surely there is not, providing he takes advantage of opportunities to inform himself as far as possible of the workings of the other branches of the organization and shows a keen interest therein while not losing sight of his own particular job. The successful executive is careful not to overlook men possessed of these qualities, and it would be unwise in any electrical engineer not to acquaint himself with all kinds of data and experience likely to fit him for such preferment.

Making Comminuted Smokeless Powder Available for Blasting Purposes

AT the close of the late war the government had on hand vast quantities of various military explosives —far in excess of the current needs of both army and navy. As such explosives differ somewhat from those ordinarily used in industry and deteriorate to some slight extent with age, it was deemed advisable to seek means whereby they might be adapted to use in the arts and sciences of peace. Experiments have shown that detonating explosives such as TNT and picric acid may be used in various kinds of industrial blasting with entire success.

Among the explosives left over when the armistice was signed, however, was a large amount of smokeless powder. As ordinarily manufactured, this possessed qualities ill adapted to commercial blasting. It has been found, however, that granular introcelluloses which function as propellants by progressive burning, when ground to a fine powder may be detonated by a dynamite primer. This renders this explosive, known as comminuted smokeless powder, available for use in blasting.

The Bureau of Mines has performed extensive experiments upon this explosive, the results of which are set forth in a report (Serial No. 2,386) entitled "Comminuted Smokeless Powder as a Blasting Agent," by C. E. Munroe and Spencer F. Howell. Some of the conclusions drawn are as follows: This explosive can be used to advantage for certain kinds of blasting in the open, such as for stumps, boulders and ditches, but it should not be used where inflammable dust or gas is present or in close places such as tunnels or mines unless the ventilation is exceptionally good and ample time is allowed for the gases to be swept out by the air current circulating. It is fired most effectively by means of an electric detonator. In loading, an adequate quantity of stemming should be used.

A SANITARY SURVEY of the mining town of Tooele, Utah, has been completed by Dr. A. L. Murray, surgeon of the Bureau of Mines. A compilation of mortality and morbidity statistics of Park City, Utah, has been made by Dr. Murray. Conferences have been held with the state health authorities regarding sanitary surveys of the Price River and Spring Canyon districts in Carbon County in that state.

Safety Congress Debates Hazards to Health and Limb—II*

Radio Fails Underground—Metal Vs. Fabric Ventilating Tubes—Rounded and Gabled Locomotive Covers—Dangers of Broken Trip—Gongs, Lights and Tags—Cable Substitutions and Their Dangers—Hoisting Hazards

INTERESTING indeed was the discussion at the meeting of the mining section of the National Safety Council, Aug. 30, on the effect of air which is grievously lacking in oxygen as may result either from breathing from and into a bag unsupplied by or ill supplied with oxygen or fed from an oxygen supply in which nitrogen is present in some quanity. The subject opened with the reading of an article by D. J. Parker on "Mine Rescue Training and Operations," at the conclusion of which B. F. Tillson, the chairman, remarked that too great a restriction had been placed on traveling up ladders in mine-rescue work.

He could not altogether sponsor such a statement as that made by Mr. Parker: "Travel by crew up or down vertical ladders in irrespirable atmospheres should be absolutely forbidden, unless it is definitely known that there is a probability of saving life by such action."

Mr. Tillson felt that rescue apparatus showed such reliability as to make such precautions unnecessary. He thought that mine-rescue work still had coal-mining conditions mainly in view and that rules were made to suit conditions where vertical raises were the exception rather than the rule. His experience in apparatus had made him feel quite ready to undertake to climb ladders and crawl long distances. He realized, however, that laboring under the terrific strain of rescue work the nerves were likely to be unstrung and the action of the heart and breathing organs different from that under normal conditions. D. J. Parker said that men were only too prone to climb ladders and take risks. At the rescue work at the Argonaut mine fire in California, then still going on, he had been informed, a crew of men climbed up ladders for a distance of 200 to 300 ft. to open a door. They achieved their purpose and returned without injury, but had one fallen none of them would have come back alive.

Forgot to Turn His Oxygen Valve and Died

R. H. Seip asked D. J. Parker, the author of the paper, whether it was well to use more than one type of rescue apparatus. Commenting on Mr. Parker's reply that uniformity resulted in certainty that each man would understand the type of apparatus apportioned to him for use in any emergency and that uniformity also made a considerable saving in the number of spare parts required, J. S. Boardman related an incident of a man who went to the rescue station of the Anaconda Copper Mining Co. for an apparatus for the shift boss and one for himself.

Though shift bosses alone are allowed to requisition for these he was permitted to take them. It was arranged that he and the shift boss were to plaster up certain cracks in a brattice built to seal up a mine fire. The shift boss and man met in the mine and the boss, having other duties to perform, went away, saying he would be back in half an hour. The man could meantime mix the batch of plastering material. He did so, but as at the end of that time the shift boss had not arrived, he put on the apparatus himself and went in and nearly completed plastering up the brattice.

For some reason—probably because trembling of his limbs* convinced him that all was not right—he came out, got within about 6 ft. of the fresh air and fell dead. The nose clip was still on his nose. He was in fact practically in fresh air. Had he taken off the nose clip he would have had a fighting chance for life. It was found that he had failed to turn on the oxygen and had been working in the same air which was in the bag when he started in. The action of his breathing had, however, converted the oxygen into carbon dioxide, which the regenerators had in turn absorbed. Consequently the air had been largely depleted of oxygen. The air near the brattice contained 13 per cent of that gas and had he divested himself of the nose clip or the whole apparatus he could have continued to breathe and even to work in the atmosphere surrounding him.

Dr. R. R. Sayers said that with carbon dioxide absent there is no irritation of the respiratory centers in the brain, for the absence of oxygen causes no such stimulation. For this reason the lack of oxygen is not noticed until after a while, when the victim begins to tremble. He added that no pain is experienced from a deficiency of oxygen if it comes slowly. D. J. Parker remarked that such a deficiency will cause the victim to fall suddenly.

Low Oxygen Produces No Reaction but Death

Dr. Sayers said that during the war the British found that whereas only 2 per cent of their flyers were shot down, as many as 8 per cent fell with their planes. This was ascribed to men attempting to fly when not in normal condition. The men would not reveal their unfitness to the commanding officer because such a declaration of momentary unfitness might have been construed as cowardice. It was finally ordered that every man submit to inspection before every flight. In rescue work no man should be allowed to participate unless he has been examined and found to be in normal health.

J. S. Boardman said that the automatic valve of certain apparatus did not begin to feed until the oxygen percentage fell to 16 and the automatic valve of other apparatus delayed action until the percentage fell to 13.

D. J. Parker remarked that with automatic apparatus the relief valve should be opened every 20 minutes so as to clean the machine of excess nitrogen. Dr. Booher asked whether that was necessary only with the automatic feed and Mr. Parker replied that working hard with a fixed feed it was well also to open the relief valve by hand. With ordinary work the fixed feed is so excessive that the relief valve opens itself. With pure oxygen the relief valve would be needed only in case of excessive pressure, but with oxygen made by the liquid-air process and not electrolytically quite

*Continuation from preceding issue of the account of the meeting of the National Safety Council at Detroit, Aug. 28-Sept. 1.

*This trembling is not usually regarded as significant by the raw rescue-apparatus man and he may delay action till too late.

a percentage of nitrogen might be present—perhaps as much as 4 per cent—and then with the removal of oxygen by the combined action of the human organism and the regenerator the quantity of nitrogen in the air being breathed might be dangerously or at least injuriously excessive.

J. S. Boardman sided with Mr. Parker in regard to the climbing of ladders. In rescue work men rarely have to scale ladders, for before being overcome the men in the workings have usually been able to get down to the roadways and are all to be found there. In the North Butte disaster not a single one of the victims was found in his working place. It is rarely that anything is gained by leaving the levels. Nevertheless the Anaconda Copper Mining Co. is leaving room so that the apparatus men fully equipped can travel up ladderways without danger of colliding with the timbers, and moreover in fighting fires the crews have at times ventured to climb 100 ft. in their apparatus.

D. E. A. Charlton's paper on "The Use of Telephones in Mines" was then presented by R. H. Seip. Joseph W. Reed said that his company, the Consolidation Coal Co., had been experimenting with qualified success on the so-called "wireless telephone," which, though it does not operate with a wire specially strung for that purpose, depends on a single metallic feeder which is either a pipe line or a rail, the ground serving for the return of the circuit. This system is practically identical with the Reineke system, described in *Coal Age*, Jan. 31, 1914.

D. J. Parker took exception to Mr. Charlton's statement that the telephone should be kept under lock and key. He knew a case where the men in a rescue party found a telephone that they had managed to reach of much assistance in their work, and he felt that men shut in the mine by a disaster would hardly regard a locked telephone as a safety provision. C. L. Colburn said that the U. S. Bureau of Mines and the Westinghouse Electric & Manufacturing Co. were collaborating in an attempt to use radio-telegraphy underground.

Radio Waves Intercepted by 50 Ft. of Cover

They had endeavored from a point in a coal mine to listen in on the KDKA sending station. Where the cover was less than 50 ft. they could hear satisfactorily, but beyond that the volume decreased rapidly. The ground appears to absorb the waves, and this made the sending to points at great depth quite problematical. Perhaps it might be different where the radio communication was made with the underground workings of a metal mine. The metallic minerals might assist in conducting the waves. Experiments were still being made and it was found that the equipment which gave best results on the surface proved less effective underground. A 20-watt sending current was used.

Mr. Colburn then described his safety visits in the past year, those of the present year and those which he planned during the rest of the year, illustrating his itineraries with a chart. He stated that some criticism had been leveled at his short stops at any one station, but this activity was unavoidable in view of the large area to be traversed and it could hardly be corrected until two or three were engaged in making the rounds instead of one. Mr. Colburn described his duties as those of a consulting safety engineer. He furnishes information on safety practices only at the request of the managers at the mines visited. Not only does Mr. Colburn visit the mines, however; he also contributes two pages monthly to the proceedings of the *National Safety News*.

After the election of officers for the ensuing year, with which the third session opened on Aug. 31, E. G. Ludlam, of E. I. duPont de Nemours & Co., delivered an address on "Portable Ventilating Equipment for Mines." He said that a flexible tube is being made that will give as little resistance to air as metal tubing. It was, of course, unsuited to suction ventilation, but it had the advantage over metal tubing that it did not leak, which metal tubing invariably does after extensive use under the conditions to which it is subjected in mines. It furthermore was resistant to acid, which metal tubes, such as were used, were not. Mr. Rowe, of the American Blower Co., who had made many experiments, said that a coefficient k of 0.302 could be obtained for the use in the equation $p = \frac{ksv^2}{a}$ where v = velocity in feet per second.

Lucien Eaton, superintendent of the Ishpeming District Mines of the Cleveland-Cliffs Iron Co., was not present. His paper on "Underground Transport" was read by William Conibear.

Locomotives Should Ring Gong Before Start

In a discussion on the use of gongs on locomotives Mr. Tillson said that such bells had been connected with the axle of the locomotive so that any movement would actuate the clapper of the gong. Some believed that locomotives in motion made noise enough to warn anyone and that the men soon became accustomed to the sound of the gong and failed to be warned by it. Some gongs were actuated electrically, but such bells did not operate when the locomotive was coasting. All such gongs sounded only when the locomotive was moving, whereas they were most needed perhaps when locomotive engineers were preparing to start, as at switches.

Mr. Eaton's paper was followed by those of H. L. Reese, electrical engineer of the Susquehanna Collieries Co., and J. S. Boardman, safety engineer of the Anaconda Copper Mining Co. These were discussed concurrently. Mr. Boardman said that in view of the use of chutes, which made the trolley wire especially dangerous, his company had begun to install storage-battery locomotives. They had now fifty such units. The first thirty had curved covers, which were furnished so as to make it impossible to use the top of the locomotive as a tray for tool steel. The new units are gable-covered for the same reason. He believed that, owing to the damage from trolley wires, storage-battery locomotives should be used wherever they can be installed with economy.

B. F. Tillson said that a man had recently been killed at his plant when riding on the electric locomotive. It had been the custom to allow two men besides the motorman to use this means of transportation. The men who dumped the cars into the skip had also to fill the cars at the chutes. To do this they had to travel with the locomotive, and he wondered why the designers of locomotives never made them long enough to accommodate more than the motorman. Since then he had provided on each trip a sort of caboose for these two men.

J. W. Reed wondered what could be done with such a caboose under normal operating conditions with the locomotive pulling the trip, as the caboose could not fail to be in the way. The manufacturers were always ready to make any needed changes if they could be embodied without detriment to the equipment. Any in-

crease in length, however, would increase the overhang and so make it more difficult to keep the locomotive on the track. It also would be more difficult to lower such a locomotive down the shaft.

Someone asked Mr. Reese if when friction shoes were placed on the rear car to keep the trip extended there was a risk that the loaded trip would part, causing a collision when some other trip came along or the locomotive returned along the same track with an empty trip. Mr. Reese explained that a tag was put on the last car. This, if its absence were duly noted, would prevent the broken part of the trip being struck by the locomotive on its return, but would not afford a safeguard against collision with another string of cars which might be following the first.

Mr. Reese said that a cowbell on a spring could be placed on the rear car for protection in pushing, and Mr. Reed recalled an accident caused by the use of a light on the rear car. A man of long experience was standing in the neck of a room as a trip passed. He noted the absence of a light on the rear of the trip and, speaking to a man nearby about it, he went up the track hunting the fallen light and was struck by the second part of the trip, the rear cars of which apparently had parted from the others some distance from the room where he had been standing.

Mr. Tillson said that for some time his company had made a practice of putting a light on the front car of a pushed trip. Unfortunately heavy blasts in the stopes would extinguish it just at the moment that it reached the place where most men were congregated and when by reason of the thickness of the smoke the cars could least readily be seen.

E. H. Denny, of the U. S. Bureau of Mines, read a paper written by himself in collaboration with G. M. Gillette, general manager of the Maryland Division of the Consolidation Coal Co., Frostburg, Md., on "Methods for Maintaining Safety Interest at Mines." Mr. Tillson declared that bonus systems for safety work were good if they were so arranged that an unfortunate occurrence early in the year would not destroy a foreman's chances of earning a bonus throughout the rest of that year, for if it did it would remove his interest in safety. Bonuses should be given for monthly, semi-annual and annual merit so as to give the man who had a bad record one month a chance in the following month to receive some reward for his safety activity.

For Attention, Put but One Bulletin on a Board

R. T. Solensten, supervisor of bulletins of the National Safety Council, spoke on "Bulletin Boards," urging that bulletins be posted on a proper board and not pasted on the sides of cars or barrels or even the walls of a shed. The psychological effect of giving the bulletin an honored place was not to be neglected. Bulletins should be posted one at a time and not more than one should be exhibited at any one time. They might be varied with photographs, especially such as are of local interest. Such bulletins might or might not carry a safety message. Some might have merely a gossipy interest to those for whom the board is intended.

J. S. Boardman condemned bulletins which instilled fear and someone remarked that if posted they would tend to make men fear to work at the plant even though its dangers were far less than those at plants which displayed no such bulletins. Another questioned bulletins which condemned tomfoolery as they were likely to promote imitation rather than abstention from the practices portrayed. One advocated that bulletins be posted when the men were gathered around, as the action advertised the bulletins. It was recommended also that the night watchman be designated to post bulletins under the instructions of the safety engineer. When left to the foreman the work was likely to be neglected. Mr. Colburn stated that one company employed a schoolboy to post bulletins in the evening.

Rudolf Kudlich, assistant to the chief mechanical engineer of the U. S. Bureau of Mines, then read an article on "Hoisting Equipment at Mines"; Graham Bright, general engineer, Westinghouse Electric & Manufacturing Co., one on "European Hoisting Practice," and E. O. Keator, civil engineer, of Dayton, Ohio, an article on "Wire-Rope Connections."

Danger Where Low-Strength Is Supplied

Mr. Keaton's remarks emphasized the importance of standardizing wire rope. His attitude to the subject was that of a civil engineer who had seen the ill effects of lack of uniformity in the cables used on contractors' equipment. Possibly it is true that contractors buy cable from jobbers without much inquiry as to the type of cable supplied or needed and that jobbers are likely not to know plow-steel cables from crucible-steel or the latter from iron cable.

Consequently accidents occur, but around the mines cable is bought mostly from the manufacturer, who has a likable failing for demanding specifications or details as to the kind of service required. No mistake is likely to be made by the purchaser after receipt of the cable, for he probably does not have more than one cable of the required length and diameter; so he can make no unsuitable substitution. Errors, of course, might be made with ropes purchased for crane hoists and general purposes but not with main-hoist equipment.

There is, however, some call for a little better understanding as to rope clips. The foreman may use too few clips and may fail to make them tight enough to hold the rope. However, as Mr. Tillson remarked, for hoisting purposes the clip is so far inferior to the speltered cap that clamps should be discarded. Care should be taken to use spelter and not babbitt or lead, and the wire should not be bunched but spread. The spelter takes such a hold on the rope that there is some justification for the statement that the spelter alloys with the steel. Mr. Tillson said, however, that some foremen preferred clamps because their condition could be noted and because the strain is not likely to be localized as it is when the speltered cap is used.

Someone advocated that not only should overwind devices be provided against raising men above the landing at which they left the cage but also for the decelerating of the hoist so that it could not arrive at the landing for the men at a speed that might tend to carry the cage beyond the landing.

Mr. Reese said that indications of the landing at which keps were out were furnished to the engineer because he was likely to forget to which level he was required to lower the cage. Mr. Tillson said that it would not be impossible to so interlock keps with the mechanism of the hoist as to prevent letting the cage fall on the keps with undesirable violence. He did not know of any instance in which this interlocking had been provided.

F. C. Carstephen, of the American Steel & Wire Co., read a paper on "Aerial Tramways." At the close of his paper the meeting adjourned.

Reports and Investigations State Geological Surveys and Mining Bureaus

Coal Reserves in Washington County Are Second Largest in Pennsylvania

By John F. Reese

WASHINGTON COUNTY has the second largest reserve of coal within the State of Pennsylvania. Five beds are considered of economic value, and the quantity of coal in the ground has been calculated for each of these beds. In order of present importance as shipping coals, these are the Pittsburgh, Redstone, Waynesburg, Washington and Freeport.

Extensive mining and prospecting in the Pittsburgh bed and its outcrop throughout the county have furnished many measurements of its thickness, thus making possible a reliable computation of quantity. For some localities, particularly the old abandoned workings along the Monongahela River and large areas in the northwestern part of the county, no maps or other data are available from which to determine the size of the areas already mined out.

The Redstone bed is developed locally in three townships within the county—namely, Union, Carroll and Fallowfield. Measurements on the outcrop and in mine workings furnish the only data available for computing the quantity. It has been assumed that the bed is continuous within these townships and an average thickness of 3 ft. has been used in the calculations. This coal is mined on a small scale for shipment and for local use.

The extensive outcrop of the Waynesburg bed throughout the county has furnished many measurements of its thickness, thus making possible a fairly reliable computation of quantity. This bed is broken by many partings, is extremely variable in its section, and in many localities is under shallow cover. For these reasons it cannot be considered as a good reserve for future commercial use, and in computing the quantity of coal only a small percentage of the bed has been figured as workable. The coal is mined for local use only.

Measurements on the outcrop of the Washington coal bed have been obtained in sufficient number to make a fairly reliable computation of the tonnage. Like the Waynesburg coal, this bed is broken by many partings, is variable in section, and in places lies under shallow cover. It is extremely dirty and in many places is represented by carbonaceous shale. For these reasons in computing the quantity of coal only a small percentage has been considered recoverable. The Washington coal is mined for local use only and cannot be considered as a good source of future supply.

Records of drillholes along the Monongahela River furnish the only reliable data on the thickness of the Freeport bed. Churn-drill records show coal at its horizon throughout the southeastern and central parts of the county. It is assumed that this coal underlies the entire county. A thickness of 42 in. has been assumed in the townships along the Monongahela River. The county has been divided into several northeast-southwest belts and an arbitrary thickness for the Freeport coal assigned in each zone. The assigned thickness was regularly decreased westward to a minimum of 24 in. in the northwestern part of the county. The quantity recoverable has been estimated as 50 per cent of the whole, from which has been deducted 15 per cent for loss in mining.

Because of the irregularity and many partings of the Redstone, Waynesburg and Washington coals, it is believed that the Freeport bed will yield a larger output than any of the others when the Pittsburgh bed had been exhausted and necessity demands the development of deep-lying deposits.

Other coals are mined for local use, but as they come from small beds and little is known of their extent and thickness, they are not included in the computation of reserves.

The result of computing the coal reserves in Washington County based on the latest maps, engineering data, and methods is shown in the following table:

COAL RESERVES IN WASHINGTON COUNTY*
(In Net Tons)

Bed	Original Deposit	Mined Out	Recoverable
Pittsburgh	5,091,310,000	556,163,000	3,516,860,000
Redstone	158,760,000	600,000	88,000,000
Waynesburg	1,914,084,000	700,000	668,380,000
Washington	972,315,000	300,000	212,540,000
Freeport	2,389,554,000	.....	995,900,000
Totals	10,526,023,000	557,763,000	5,481,680,000

* The total area of Washington County is 884.6 square miles.

Detailed tables of the coal reserves in each township have been prepared and will appear in printed form in a report now being written on the bituminous-coal fields of the state. They can be consulted in the office of the Topographic and Geological Survey, or figures for a single township will be sent on request.

Shows Possibilities of Distillation of Pennsylvania Bituminous Coal

IN Bulletin No. 9 of the Bureau of Topographic and Geological Survey of Pennsylvania, George H. Ashley, state geologist, treats the subject of the "Future Use of Raw Coal." In this paper, mimeograph copy of which may be obtained upon request, Mr. Ashley shows some of the possibilities of distilling the bituminous-coal output of Pennsylvania.

After reviewing briefly the beehive and ordinary byproduct process of distillation the author takes up the various low-temperature coking processes that have been developed into commercial propositions. These include chiefly the Coalite process in England and the Carbocoal process in this country. While these two yield a residual fuel differing widely in appearance and physical characteristics, the byproducts, both in quality and volume, are closely similar. The solid fuels produced also are far more efficient as heat producers than are the coals from which they are made.

In the latter part of the paper Mr. Ashley goes into the possibilities of coking by the low-temperature process the bituminous output of Pennsylvania. It would appear that it would be well within the range of possibility to produce 400,000,000 gallons of motor fuel, 1,260,000,000 gallons of Diesel and lubricating oils; also 1,050,000 tons of sulphate of ammonia and about 105,000,000 tons of residual solid fuel, which because of its smokelessness and efficiency in burning is more valuable than an equal weight of raw coal.

Problems of Operating Men

Edited by James T. Beard

Testing a Safety Lamp Before Entering The Mine

Every Lamp Should Be Tested Before It Is Taken into the Mine —Blowing Hard Against the Lamp a Good Test—Tighten the Lamp Only After It Has Become Heated—Custom in France

WITH much pleasure I read the several letters that appeared in *Coal Age*, Aug. 17, p. 247, regarding the practical testing of a safety lamp to ascertain that it is in safe condition to be carried into the mine. This is an important matter that I feel has not been given the attention it should receive in this country.

In addition to carefully inspecting every part of the lamp when it is assembled, every lamp should be put to a practical test. In the old country, we have apparatus for that purpose. There, the lamp is subjected to horizontal and vertical air currents, by the use of compressed air. Besides this, each miner tests his own lamp by blowing against it. He also examines the gauzes by unscrewing the bonnet that protects the lamp.

Many of the modern lamps are not made with a bonnet that can be removed without unlocking the lamp. For that reason, it is important that the gauze should be carefully examined before the lamp is locked. This, of course, must be done in the lamphouse when the lamp is assembled.

Blowing Against the Lamp Is a Good Practical Test

One writer seems to regard it as not being a good test to blow against the lamp. He claims that the carbon dioxide, in the breath exhaled from the lungs, has an extinctive effect and, for that reason, such a test does not prove that the lamp is unsafe.

In my opinion, the blowing test is a good practical test that should be applied by every miner, before he takes his lamp into the mine. The same writer claims that it is possible to blow out the light in any Wolf lamp, by blowing hard against it under the air-admission ring. That statement I think is wrong.

Now, a word about tightening the lamp. It is my belief that there is no danger of cracking the glass in a lamp having good expansion rings. When properly made and adjusted in the right position in the lamp, these rings should take up any expansion due to the heating of the glass.

Back in 1898, when working in a mine in France, it was my duty to serve several entries with fresh safety lamps. The lamps had no relighters, in those days, and were easily extinguished when tilted only a little. It was nothing uncommon to have sixty lamps brought to the lamphouse in a single day to be relighted.

There have been many changes since that time, but there is far less care taken in the right use of lamps, today. Then, every miner was made responsible for his lamp if it was found defective on being returned to the lamphouse. For that reason, if a miner thought his lamp was unsafe he had the right to refuse to take the lamp and ask for another.

Precautions Taken in French Mines To Insure Safety

In this connection, a brief summary of the practice at the Carvin No. 2 mine (Pas-de-Calais) will be of interest. In that mine 500 miners were employed. On going to the lamphouse in the morning, each miner would find his lamp completely taken apart, glass, bonnet, small and big gauzes, standard bowl, etc. The miner would assemble his own lamp and, after satisfying himself that it was safe. He would then take it to the testing man, who must pass on the lamp before it is taken into the mine. This practice would, of course, not do, at the present time, in large operations; but it shows the care that was then taken to see that the lamps were safe.

A flame safety lamp is a dangerous thing at the best; and when carried into the mine by an inexperienced person, or is carelessly handled by a miner at his work, it is doubly dangerous. Sufficient attention has not been given, in this country, to instruct miners and daymen in how to use the safety lamp.

Mines Gassy in Southern Illinois

In a mine in southern Illinois, some time since, I noted a fireboss traveling, at a lively gait, with a lighted carbide lamp in his cap and a lighted safety lamp swinging at his side. I mention this only to draw attention to the fact that a man who falls into the habit of swinging his safety lamp will be apt to do this sometime when he is traveling in a gas charged atmosphere. The swinging of a lamp exposes it to a velocity greater than what is safe and should be avoided at all times.

Peru, Ill. GASTON F. LIBIEZ.

OTHER LETTERS

PERMIT me to add a few words to what has already been said in the interesting letters on the practical testing of safety lamps before taking the same into the mine. I fully agree with my friend, Joseph Cain, whose letter in *Coal Age*, July 13, p. 60, started this discussion.

With Mr. Cain, I believe there is no more practical test that can be readily applied by every miner, to test his safety lamp before going into the mine, than to blow hard against the lamp, both at the base of the gauze and below the globe. In my opinion it is a most effective way of telling whether the lamp is really safe.

To my knowledge, this method has been practiced for many years in the British Isles and I believe the same test is used by a large number of miners, in the majority of our coal fields, today. My observation is that it has always given satisfaction.

A Cautious Mine Inspector

Not so very long ago, a mine inspector, in the bituminous fields of Pennsylvania, was making an inspection of a mine, with the foreman in attendance. After descending to the shaft bottom, the inspector examined the foreman's lamp and found it to be improperly assembled. By blowing at the bottom of the globe, the lamp was readily extinguished.

Leaving the lamp at the bottom of the shaft, the inspector proceeded to make his inspection of the mine, accompanied by the foreman, who had procured another lamp. In their rounds, they found one entry that contained several hundred cubic feet of gas accumulated at its face.

It is easy to imagine what might have happened at that time had not the inspector taken the precaution of inspecting the foreman's lamp and blowing against it. It is probable that not only the two men would have been killed or badly burned, but other fatalities might have resulted.

In one of the letters, in this discussion, the belief is expressed that a Wolf lamp can be readily extinguished by blowing hard against the lamp. My experience is that if the lamp is properly assembled it cannot be put out by blowing anywhere around the globe or the gauze of the lamp.

Let me say, also, that the carbon dioxide exhaled from the lungs, in blowing, would have no effect to extinguish the lamp flame. Although the proportion of carbon dioxide exhaled in the breath is 2.6 per cent, at rest; and, I believe the Wolf lamp is extinguished in an atmosphere containing 3 per cent of carbon dioxide, it must be remembered that the exhaled air blown against the lamp will be rapidly diluted before reaching the flame. Neither of these statements appeal to me as correct.

Dante, Va. J. A. HOLMES, JR.

REFERRING to the instance narrated by Joseph Cain, in his letter *Coal Age*, July 13, p. 60, there is only one conclusion at which a person of any experience in the use of safety lamps can arrive. Either these three firebosses were very careless in putting their lamps together, or they did not know how to assemble them.

Whichever view is taken of the situation, a fair judgment must pronounce these men as clearly incompetent to hold the responsible positions for which they were chosen. It is not stated specifically in what respect the lamps failed; but I assume that they were all alike defective by reason of not being tightened up sufficiently.

PRACTICE OF AN OLD FIREBOSS

My last experience of this nature was with a Wolf lamp. The lamp was equipped with an expansion ring and I also used a rubber or asbestos washer on each end of the glass, where the cylinder came in contact with the metal frame of the lamp.

On arriving at the mine in the morning, it was my custom to light my lamp and tighten it up only partially. This being done, I would proceed to change my clothes and by that time my lamp would be hot and ready to be tighened up securely. I would continue to screw up the lamp, while blowing against the glass cylinder, until the flame seemed to flicker.

One mine at which I was employed was worked exclusively with safety lamps, and the practice there was to treat all lamps in the same manner that I have just described. I never heard of a glass cylinder being broken by expansion.

Dayton, Tenn. JOHN ROSE.
Former District Mine Inspector.

IN REGARD to testing safety lamps to ascertain that they are safe, before taking them into the mine, in British Columbia the law calls for all oil safety lamps to be submitted periodically to a test in a gaseous mixture. The results of this test determine whether or not the lamp is in a safe condition to be taken underground.

In this province, the procedure is as follow: Each miner receives his lamp at the lamp cabin where it has been assembled by men appointed for that work. At the mine entrance, each lamp is again examined by the fireboss, as the man enters the mine for work.

Just here is where I claim the blowing test has its value. I regret to see that some contributors, in this discussion, speak lightly of the test by blowing against the lamp. Besides blowing on the lamp, the fireboss examines to see that it is properly assembled and no parts missing.

BLOWING TEST MUST BE PROPERLY MADE TO BE EFFECTIVE

When the blowing test is properly applied it shows, by the flickering of the flame, that the parts are loosely fitted together or that some part is missing, or a washer is broken or damaged. If any one of these defects is revealed the test shows that the main principle on which all safety lamps are constructed is violated. In other words, no air must reach the flame, except through the proper channels and gauze-protected openings.

As far as the extinction of an oil-burning lamp by reason of the carbon dioxide in the exhaled breath blown against the lamp is concerned, Dr. Haldane has shown that the extinction of an oil-burning lamp by reason of the presence of carbon dioxide requires about 14 per cent of that gas; whereas the percentage of carbon dioxide in the exhaled breath varies from 2.6 to 6.6 per cent, according to whether the person is at rest or is undergoing violent exercise.

From these facts it is easy to see that the slight amount of carbon dioxide in the breath would have no effect to extinguish the lamp flame and would in no way affect the value of the test. It may be of interest to state here that, within the past year or two, the advent of the electric cap lamp has almost entirely eliminated oil-burning safety lamps, in this province, except for the purpose of testing for gas.

GEORGE MURRAY.
Nanaimo, B. C., Canada.

Improved Longwall Panel System

Method of side approach to longwall face—Plan reduces cost of development if properly applied—Criticism of proposed plan.

REFERRING to the interesting article of M. L. O'Neale, *Coal Age*, May 25, p. 877, in which he has proposed a new modified longwall panel system of mining, permit me to offer a few comments on the method he has outlined only too briefly.

If I understand correctly, the plan has many features that commend it to careful consideration. As Mr. O'Neale has stated, it can be modified in various ways to suit different conditions. The description he has given applies particularly to a fairly level seam of coal underlying a slight cover.

In my opinion, the method has certain features that cannot be excelled. It is certainly an improvement on the ordinary longwall advancing method, which requires the building of extensive packwalls to maintain the roadways leading to the working faces.

Again, the whole plan promises an increased production of coal from a given territory, together with a much desired concentration of the working faces, a practically complete extraction of the coal and the utilization of improved mechanical equipment.

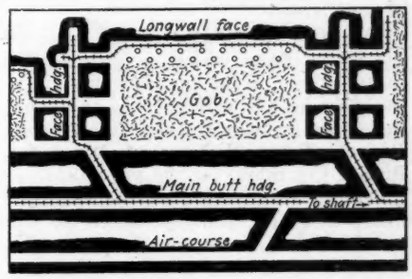
In all of these respects, the proposed method possesses distinct advantages over the room-and-pillar system of mining and either the longwall advancing or the retreating systems. As I regard it, the chief feature that distinguishes this method from other longwall panel systems is the driving of face headings that enable a side approach to the working face, without entailing the expense of driving separate pairs of headings.

SAVE COST OF DEVELOPMENT BY DRIVING FACE HEADINGS SINGLE

I may be wrong, but it seems to me that the sketch presented in Mr. O'Neale's article, page 877, does not properly illustrate the method he describes. In attempting to show both the longwall-advancing face and the drawing back of the face-heading pillars in one sketch, it appears as though the development required the driving of the face headings three abreast.

In this respect, let me say that, to my mind, the cost of development can be much decreased by driving only single headings, one on each side of the longwall face, keeping them in advance of that face, say 80 ft., or the distance between crosscuts. I believe this is the plan intended by the description given, as it would afford good ventilation of the working face, at a minimum cost for yardage in entry driving.

In the accompanying figure I have attempted to show this feature of the



REVISED PLAN OF LONGWALL PANEL

plan, as I understand it. Of course, it is understood that no face-heading pillars can be withdrawn before the panels on each side have been worked out and abandoned. Allow me to offer one other criticism of the plan, having reference to the distance apart of driving the butt headings; or, in other words, the length to which the face headings are driven before drawing back the pillars.

In the previous sketch, the distance between the butt headings is given as 1,200 ft. Assuming fair roof conditions, I cannot understand why the face headings should not be extended a distance of as many yards, or more, before turning another pair of butt headings.

The face headings are supported by good pillars on either side of the road

and there is no particular weight thrown on these pillars, inasmuch as the extraction of the coal in the panel is complete. If this is done, I do not see how the proposed method could be improved, in respect to producing coal at a minimum cost for development.

Finally, let me say had this method been in use before the present prolonged strike, there would not be, now, the need of so large an expenditure of money required to put the mines in good shape again for work. I only wish that Mr. O'Neale had gone further in his description and given us an approximate estimate of what it would cost to open a mine on such a plan capable of producing say 5,000 tons of coal a day. I believe such an estimate would show some convincing figures in favor of the plan.

Linton, Ind. W. H. LUXTON.

Reply to Criticism of a Recent Canadian Report

Chemical analysis of air samples given in fireboss' report—Volume of gas generated, per ton of coal mined, estimated.

MY attention has been called to a criticism of a fireboss' report, contained in the Annual Report of the Minister of Mines, British Columbia. The criticism appeared in *Coal Age*, July 13, p. 60, and calls for some comment.

The contribution is signed "Mining Engineer." It criticises in rather severe terms, an alleged omission on the part of the fireboss making the report. It is claimed that he reports no explosive gas found in a mine that is rated as generating 4,500 cu.ft. of gas, per ton of coal mined.

Our critic does not state the page of the report from which he gleaned his information. I assume. however, it is probable he has reference to the table appearing on page G-247 of the Annual Report of the Minister of Mines for British Columbia, for the year 1921.

On that page is given the chemical analysis of air samples taken in the various coal mines, included in the East Kootenay inspectorate. Had our friend read all the data contained in the table mentioned, he would have found the answer to his question as to what is a fair percentage of gas that may be expected to be found in the return airway of such a mine.

Now, in order to ascertain the percentage of gas contained in the return air of a mine, it is absolutely necessary to know the quantity of atmospheric air passing into the mine and also the quantity of gas generated. These data are fully given in the table to which I have referred.

The chemical analysis of sample 376, taken in the main return of No. 3 East Mine, Michel, Aug. 23, 1921, is given as follows: Carbon dioxide, 0.14 per cent; oxygen, 20.5 per cent; methane, 1.09 per cent; nitrogen, 78.27 per cent.

The quantity of air circulated in this mine is given as 100,800 cu.ft. per min.; humidity 100 per cent; methane generated, 1,098 cu.ft. per min., or 1,569.600 cu.ft. in twenty-four hours. The output of this mine is given as 350 tons of coal, per day, from which it is estimated that the volume of methane generated is 1,569,600 ÷ 350 = 4,480 cu.ft. per ton of coal mined.

These quantities, let me say, were obtained by the compilation of all the samples taken during the year. In the course of inspection, explosive gas was found ten times, generally located in cavities in the roof (see p. G336 of the report). The mine employed 98 men and 8 horses were working in the twenty-four hours.

Tests were made daily, in the return of every split, with the Burrell gas detector, and the results were entered in the fireboss' book kept for that purpose. The percentage of methane shown in the return air (1.09 per cent) would only give a small cap on the Wolf lamp. This percentage is far below what is considered, by the Coal Mines Regulation Act of British Columbia, as necessitating the withdrawal of the men; namely, 2.5 per cent.

In view of these facts, there appears to be little need of the "rigid investigation by some higher official in the district," as thought by this correspondent.

HARRY E. MIAROL,
Member of Board of Examiners.
Department of Mines,
British Columbia.

Inquiries Of General Interest

Horsepower of Engine; Specific Gravity of Gas

Estimating the Horsepower of an Engine—Data Required: Diameter of Cylinder, Mean Effective Cylinder Pressure, Piston Speed—Specific Gravity of a Gas Its Relative Weight Referred to Air as a Standard

KINDLY explain, through the columns of *Coal Age*, two questions that are not clear to me and which, in my present situation, I have not the means to study, at hand. They are: 1. How is the power of a steam engine estimated? 2. What is meant by the specific gravity of gas, and how is it measured? STUDENT.

——, W. Va.

The horsepower of an engine is an expression of the work it is capable of performing in a given time. The unit of work is the foot-pound, or the work performed when a pound is raised through a vertical distance of one foot; or a pound pressure exerted through a distance of a foot. The accepted horsepower is the power capable of performing 33,000 units of work in one minute; or 550 ft.-lb. per hour.

In the steam engine, the total steam pressure acting to drive the engine is the mean effective steam pressure in the cylinder multiplied by the sectional area of the cylinder. The distance through which this pressure is exerted, in a single minute, is the piston speed (ft. per min.) of the engine.

Therefore, to find the horsepower of the engine, multiply the total steam pressure (lb.), in the cylinder, by the piston speed (ft. per min.), and the product will be the foot-pounds per minute; or the work performed in that time by the engine. Finally, dividing this item by 33,000, gives the horsepower of the engine.

Calling the mean effective steam pressure in the cylinder (lb. per sq.in.), p; the sectional area of the cylinder (sq.in.), a; length of stroke (ft.), l; number of strokes per minute, n; the indicated horsepower of the engine (H) is expressed by the formula

$$H = \frac{plan}{33{,}000}$$

In this formula, pa is the total average pressure of the steam in the cylinder, in pounds, and ln is the piston speed of the engine, expressed in feet per minute.

SPECIFIC GRAVITY OF GASES

Specific gravity is another expression for the relative weight of a substance, referred to an accepted standard, taken as unity. The standard for gas is air, at the same temperature and pressure as the gas. The specific gravity of a gas, therefore, expresses the relative weight of the gas as compared to the same volume of air, at the same temperature and pressure.

For example, the specific gravity of carbon dioxide is 1.529. This is another way of saying that carbon dioxide is 1.529 times as heavy as the same volume of air, at the same temperature and pressure. Again, the specific gravity of methane or marsh gas is 0.559, which shows that this gas is 0.559 times as heavy as the same volume of air, at the same temperature and pressure.

It is clear that when the specific gravity of a gas is greater than one, the gas is heavier than air; and when it is less than one, the gas is lighter than air. In practice, the specific gravity of gases is determined in the laboratory by careful measurements of equal volumes of the gases, at equal temperatures and pressures.

Examination Questions Answered

Miscellaneous Examination Questions

(Answered by Request)

QUESTION—*How much work, expressed in horsepower, is done in raising* 400 *tons of coal up an incline* 3,000 *ft. long, having an inclination of* 1 *in* 3, *when the friction of the cars adds* 40 *per cent to the load?*

ANSWER—For a rise of 1 ft. for every 3 ft. measured on the incline, the total rise or vertical height through which the load is lifted in ascending this plane is $3{,}000 \div 3 = 1{,}000$ ft.

Adding 40 per cent for friction, the gross load hauled is $400 \times 1.40 = 560$ tons. The work performed in a single hoist is, therefore, $560 \times 2{,}000 \times 1{,}000 = 1{,}120{,}000{,}000$ ft.-lb.

It is not possible to express this work as horsepower, without knowing the time in which it was performed. For example, 100 hp. would perform this work in

$$1{,}120{,}000{,}000 \div (100 \times 33{,}000) = \text{say } 340 \text{ min.}$$

which would represent an 8-hr. day, less 40 min.

QUESTION—*A shaft,* 900 *ft. deep, is passing* 200,000 *cu.ft. of air per minute, under a water gage of* 2 *in. What is the horsepower producing the circulation; and what is the width of the furnace if the bars are* 5 *ft. in length?*

ANSWER—The horsepower on the air, in this case, is $H = (200{,}000 \times 2 \times 5.2) \div 33{,}000 = 63$ hp.

The area of grate (A), in square feet, for a depth of shaft (D), in feet, and horespower (H) on the air, is estimated by the formula

$$A = \frac{34\,H}{\sqrt{D}} = \frac{34 \times 63}{\sqrt{900}} = 71.4, \text{ say } 70 \text{ sq.ft.}$$

Therefore if the grate bars are 5 ft. long, the width of the furnace is $70 \div 5 = 14$ ft.

QUESTION—*An airway is* 5 *ft. wide at the top,* 8 *ft. wide at the bottom and* 6 *ft. high. If the anemometer reads* 280 *what is the quantity of air passing?*

ANSWER—The sectional area of this airway is $\frac{1}{2}(5 + 8)6 = 39$ sq.ft. Then, assuming the given reading represents an average velocity for the entire section of the airway, the quantity of air passing is $280 \times 39 = 10{,}920$ cu.ft. per min.

QUESTION—*If you suddenly found yourself in an explosive mixture of gas, state briefly what you would do.*

ANSWER—Keep cool; make no quick movement, but promptly and slowly lower the lamp, at the same time smothering it as well as you can beneath your coat, while withdrawing as carefully and quietly as possible from the place. Any quick movement would only disturb the gas at the roof and cause it to descend, thereby increasing the danger of the lamp passing flame and igniting the gas surrounding the gauze. A fireboss, under these conditions, requires great presence of mind to enable him to act intelligently and safely.

QUESTION—*Do you believe in systematic timbering? Who is the better judge of the need of timbering, the boss or the miner? How often should the roof be examined?*

ANSWER—Under uniform roof conditions, requiring the setting of posts to support the top, the safest plan is to adopt such a systematic form of timbering as is best suited to the conditions. Where the conditions are not uniform, the style of timbering employed must be determined by the best judgment and experience of the miner and the officials in charge.

Many experienced miners are good judges as to what timbering is needed in their places. However, such is the miner's desire to make a good day's run that he is prone to think the roof above him is not unsafe for a time. On the other hand, the foreman or safety inspector, feeling his responsibility for the safety of the men will generally make the best judge as to the need of timbering in a place. The roof in a working place should be examined frequently during working hours and every precaution taken to avoid even the possibility of accident.

QUESTION—*How much air will be required to dilute* 500 *cu.ft. of marsh gas to a* 4 *per cent mixture?*

ANSWER—In this case, 500 being 4 per cent of the mixture, the total volume of gas and air is $500 \div 0.04 = 12{,}500$ cu.ft. The volume of air required is therefore $12{,}500 - 500 = 12{,}000$ cu.ft.

QUESTION—*What precautions should you take to avoid accidents on a gangway along which men are obliged to travel and on which cars and mules or cars and motors are passing frequently?*

ANSWER—Where men are obliged to travel on haulage roads there should be provided a good clear space on one side of the road to enable men to pass the cars in safety. There should also be provided refuge holes, at regular short intervals, on one side of the road, and these should be kept free from all obstruction and whitewashed so that they can be easily found when needed. All trips, cars and locomotives should be provided with headlights and gongs, or other means of warning to herald their approach. The speed of hauling cars and trips should be limited to a reasonable amount, say not to exceed six miles per hour.

QUESTION—*What are the dangers pertaining to a broken power wire or a poorly insulated wire, in a coal mine?*

ANSWER—A broken power wire may, by contact with pipes or rails or other wires in that vicinity, cause a short circuiting of the current and the dangerous charging of such pipes, rails or wires. Anyone coming in contact with a pipe or wire so charged would receive a shock that might prove fatal. A poorly insulated wire presents the danger of accidental contact with the wire, together with loss of voltage, by reason of the short-circuiting of the current at that point.

QUESTION—*How would you determine whether a hoisting rope is unsafe and what portion of the rope would you consider the weakest part, or the part most liable to give out first?*

ANSWER—Every hoisting rope should be carefully examined at the beginning of each shift to detect any possible broken wires or other points of weakness. This is done by allowing the rope to pass through a bunch of waste held in the hand, while the engineer hoists the cage slowly. A close examination must be made of all ropes, sockets and fastenings on the drum. That portion of the rope within a few feet of the cage coupling is weakest and most liable to give out first, owing to its being subjected to the most severe usage and bending.

QUESTION—*State how you would commence to remove a large body of firedamp and what precautions you would take. State what danger there would be in doing the work.*

ANSWER—Without knowing the particular conditions, it can only be stated, in a general way, that no attempt must be made to disturb or remove the gas from its lodgment, until all the men have been withdrawn from that section of the mine and, if need be, from the entire mine. This will depend, however, on the arrangement of the circulation. Having withdrawn the men, except those engaged in the work of removing the gas, station reliable men at all entrances to the district and the return air-course leading out of the mine. This being done, the work of removing the gas must start from the intake end of the section. The circulation must be increased as much as practicable and brattices must be erected to conduct the air in such a manner that it will sweep the gas from its lodgment. No lights other than that of safety lamps of an approved type must be permitted, and each lamp must first be carefully examined and tested before being taken into the mine. The brattice must be extended gradually, keeping a careful watch on the progress of the work, by making repeated tests of the gas with a safety lamp. In this manner the work must be continued, until all the gas has been removed from the section. Each working face must then be examined and reported safe before the men are permitted to return to work.

Anthracite Produced in 1921, by Regions*

(In Gross Tons)

Region	Shipments Quantity	Shipments Value	Local Sales Quantity	Local Sales Value	Used for Power Quantity	Used for Power Value	Total Production Quantity	Total Production Value
Lehigh								
Freshly mined coal	9,092,702	$56,344,295	537,329	$1,905,323	1,117,214	$1,774,374	10,747,245	$60,023,992
Washery product	242,944	1,016,075	14,272	25,608	1,398	5,065	258,614	1,046,748
Dredge product	21,599	27,336	.....	.....	150	300	21,749	27,636
	9,357,245	$57,387,706	551,601	$1,930,931	1,118,762	$1,779,739	11,027,608	$61,098,376
Schuylkill:								
Freshly mined coal	19,382,865	$119,259,110	435,606	$2,659,909	3,311,935	$2,100,261	23,130,406	$124,019,280
Washery product	449,390	1,515,108	.....	.....	88,843	122,682	538,233	1,637,790
Dredge product	225,913	220,010	286,725	363,692	4,550	4,631	517,188	588,333
	20,058,168	$120,994,228	722,331	$3,023,601	3,405,328	$2,227,574	24,185,827	$126,245,403
Wyoming:								
Freshly mined coal	39,268,163	$248,866,892	1,227,457	$6,920,174	3,834,466	$4,859,113	44,330,086	$260,646,179
Washery product	616,102	2,232,474	241	506	303,442	394,783	919,785	2,627,763
Dredge product	17,199	33,115	308	1,520	100	50	17,607	34,685
	39,901,464	$251,132,481	1,228,006	$6,922,200	4,138,008	$5,253,946	45,267,478	$263,308,627
Sullivan County:								
Freshly mined coal	237,686	$1,475,463	9,268	$57,474	52,000	$119,560	298,954	$1,652,497
Total freshly mined coal	67,981,416	$425,945,760	2,209,660	$11,542,880	8,315,615	$8,853,308	78,506,691	$446,341,948
Total washery product	1,308,436	4,763,657	14,513	26,114	393,683	522,530	1,716,632	5,312,301
Total dredge product	264,711	280,461	287,033	365,212	4,800	4,981	556,544	650,654
Grand total	69,554,563	$430,989,878	2,511,206	$11,934,206	8,714,098	$9,380,819	80,779,867	$452,304,903

*Compiled by U. S. Geological Survey.

Anthracite Shipped in 1921, by Regions and Sizes*

(In Gross Tons)

Size	Lehigh Region Mines	Lehigh Region Washeries	Lehigh Region Dredges	Schuylkill Region Mines	Schuylkill Region Washeries	Schuylkill Region Dredges	Wyoming Region Mines	Wyoming Region Washeries	Wyoming Region Dredges	Sullivan County Mines	Total	Percentage of Total
Lump	.....	.....	.....	9,703	.....	.....	2,627	.....	.....	.....	12,330	.....
Broken	174,262	1,145	.....	641,957	3,507	.....	1,643,335	68	.....	10,416	2,474,690	3.6
Egg	1,307,612	12,221	.....	2,520,409	5,496	.....	6,361,616	6,990	.....	25,515	10,239,859	14.7
Stove	1,757,426	16,293	.....	3,793,819	4,991	.....	9,035,728	35,344	.....	44,037	14,687,638	21.1
Chestnut	2,358,864	38,244	.....	4,807,884	53,948	.....	11,235,371	76,837	.....	65,534	18,636,682	26.8
Pea	981,552	26,596	865	2,020,455	47,060	28	2,684,236	68,646	1,280	34,661	5,865,379	8.4
Buckwheat, No. 1	1,233,111	28,518	1,165	3,347,167	103,958	40,423	4,479,479	113,228	1,960	.....	9,349,009	13.4
Buckwheat No. 2 and Rice	598,681	29,082	.....	1,151,726	90,587	2,915	2,508,298	134,325	.....	.....	4,515,614	6.5
Buckwheat No. 3 and Barley	563,106	89,537	19,569	1,043,122	130,317	40,680	1,128,820	146,368	3,199	.....	3,164,718	4.6
Boiler	15,493	1,308	.....	4,985	21	68,799	147,082	29,748	10,760	.....	278,196	0.4
Other (a)	102,595	.....	.....	41,638	9,505	73,068	41,571	4,548	.....	57,523	330,448	0.5
	9,092,702	242,944	21,599	19,382,865	449,390	225,913	39,268,163	616,102	17,199	237,686	69,554,563	100.0

* Compiled by U. S. Geological Survey. (a) Includes quantity reported as culm, buckwheat No. 4, screenings, settlings, silt, mine run, dirt and slush.

Value of Anthracite Shipped in 1921, by Regions and Sizes*

Size	Lehigh Region Mines	Lehigh Region Average Value	Lehigh Region Washeries	Lehigh Region Average Value	Lehigh Region Dredges	Lehigh Region Average Value	Schuylkill Region Mines	Schuylkill Region Average Value	Schuylkill Region Washeries	Schuylkill Region Average Value	Schuylkill Region Dredges	Schuylkill Region Average Value
Lump	.....	.....	.....	.....	.....	.....	$72,768	$7.50	.....	.....	.....	.....
Broken	$1,308,653	$7.51	$8,326	$7.27	.....	.....	4,983,053	7.76	$27,090	$7.72	.....	.....
Egg	10,042,861	7.68	91,236	7.47	.....	.....	19,234,895	7.63	41,064	7.47	.....	.....
Stove	13,946,710	7.94	131,046	8.04	.....	.....	29,647,890	7.81	39,915	8.00	.....	.....
Chestnut	18,557,999	7.87	304,531	7.96	.....	.....	38,074,078	7.92	394,674	7.32	.....	.....
Pea	5,812,210	5.92	161,178	6.06	$2,890	$3.34	11,710,372	5.80	259,573	5.52	$56	$2.00
Buckwheat No. 1	4,305,755	3.49	101,947	3.57	2,562	2.20	11,508,711	3.44	348,767	3.35	49,244	1.22
Buckwheat No. 2	1,437,219	2.40	68,509	2.36	.....	.....	2,558,390	2.22	212,845	2.35	3,627	1.24
Buckwheat, No. 3	868,234	1.54	146,143	1.63	21,884	1.12	1,425,757	1.37	184,536	1.42	33,554	0.82
Boiler	15,481	1.00	3,159	2.42	.....	.....	12,110	2.43	39	1.86	67,702	0.98
Other	49,173	0.48	.....	.....	.....	.....	31,086	0.75	6,605	0.69	65,827	0.90
	$56,344,295	$6.20	$1,016,075	$4.18	$27,336	$1.27	$119,259,110	$6.15	$1,515,108	$3.37	$220,010	$0.97

Size	Wyoming Region Mines	Wyoming Region Average Value	Wyoming Region Washeries	Wyoming Region Average Value	Wyoming Region Dredges	Wyoming Region Average Value	Sullivan County Mines	Sullivan County Average Value	Total Total	Total Average Value
Lump	$13,683	$5.21	.....	.....	.....	.....	.....	.....	$86,451	$7.01
Broken	11,839,868	7.20	$553	$8.13	.....	.....	$77,715	$7.46	18,245,258	7.37
Egg	46,329,198	7.28	47,591	6.81	.....	.....	191,176	7.49	75,978,021	7.42
Stove	68,305,209	7.56	262,090	7.42	.....	.....	338,167	7.68	112,671,027	7.67
Chestnut	84,281,697	7.50	548,017	7.13	.....	.....	504,408	7.70	142,665,404	7.66
Pea	15,130,474	5.64	384,487	5.60	$7,040	$5.50	204,683	5.91	33,672,963	5.74
Buckwheat, No. 1	15,247,964	3.40	401,797	3.55	4,900	2.50	.....	.....	31,971,647	3.42
Buckwheat, No. 2	5,650,883	2.25	304,732	2.27	.....	.....	.....	.....	10,236,205	2.27
Buckwheat, No. 3	1,665,024	1.48	214,807	1.47	10,339	3.23	.....	.....	4,570,278	1.44
Boiler	336,690	2.29	60,518	2.03	10,836	1.01	.....	.....	506,535	1.82
Other	66,202	1.59	7,882	1.73	.....	.....	159,314	2.77	386,089	1.17
	$248,866,892	$6.34	$2,232,474	$3.62	$33,115	$1.93	$1,475,463	$6.21	$430,989,878	$6.20

* Compiled by U. S. Geological Survey.

GROWING OUT OF THE EXPERIENCE during this and other coal emergencies, there is a demand for a classification of coal as to use. This information is important in handling distribution problems, as is being demonstrated each day at the office of the Fuel Distributor. For instance, it is known that many mines produce locomotive coal so similar in character that no changes would be necessary in its firing. At present, great difficulty is being experienced in substituting coal on railroads where the firemen are accustomed to burning a certain character of fuel. Since there is no use classification in existence, it is impossible to substitute a coal of the same general character so that the engine crews will have no trouble in burning it. An effort is being made to induce the Bureau of Mines to undertake the preparation of such a classification.

One of the staff working on distribution remarked recently that they are not much better equipped to undertake distribution than were the Soviet authorities who attempted to distribute fuel on a B.t.u. basis. As a result, gas plants got peat, and plants equipped to burn peat were allotted gas coal. They got their requisite number of B.t.u.'s but in a form difficult to utilize.

Smokeless Output in June 90,000 Tons in Excess of That of May

West Virginia smokeless fields produced and shipped 3,777,558 net tons of coal during June, approximately 90,000 tons in excess of the May figure and 907,584 tons more than in June, 1921. Total smokeless output for the first six months of 1922 was 19,388,409 tons, 5,382,239 in excess of the corresponding period last year.

JUNE OUTPUT OF SMOKELESS COALS OF WEST VIRGINIA
(In Net Tons)

District	1922	1921	1922 Increase
Pocahontas	1,920,590	1,333,925	586,665
Winding Gulf	784,568	618,854	165,714
New River	582,515	467,520	114,995
Tug River	489,885	449,675	40,210
Total, June	3,777,558	2,869,974	907,584
Total, May	3,687,874	2,975,711	.....

Of this production the Norfolk & Western hauled 2,410,475 net tons, the Virginian 632,893 tons, and the Chesapeake & Ohio 734,190 tons. Total coal movement by these roads in June was as follows:

HAULED BY NORFOLK & WESTERN RY.	
Pocahontas	1,920,590
Tug River	489,885
Thacker	689,455
Clinch Valley	252,300
Kenova	182,690
Total, June	3,534,920
Total, May	3,554,525
HAULED BY CHESAPEAKE & OHIO RY.	
Logan	641,060
New River	512,350
Winding Gulf	221,840
Kanawha	114,160
Coal River	82,780
Kentucky	464,670
Total, June	3,036,860
Total, May	2,677,580
HAULED BY VIRGINIAN RAILWAY	
Winding Gulf	562,728
New River	70,165
High Volatile	86,348
Total, June	719,241
Total, May	701,805

"Standardize" Still Is Watchword of American Mining Congress

Some notable advances in standardizing mining methods and machinery are expected to be made known at the twenty-fifth convention of the American Mining Congress in Cleveland, Oct. 9 to 14. Much will be said on the general subject at several sessions of the congress but the entire day of Oct. 12—the heart of the convention—is to be devoted to standardization, for this is to be the third national standardization conference. Many committees on various phases of the question will report.

It is expected that striking progress will be made known in the following discussions and recommendations: "Drilling Machines and Drill Steel," by Norman Braly, general manager of the North Butte Mining Co.; "Mining and Loading Equipment," by E. N. Zern, of the Keystone Consolidated Publishing Co.; "Mine Timbers," by Gerald Sherman, consulting engineer of the Phelps-Dodge Corporation, and by R. L. Adams, chief engineer for the Old Ben Coal Corporation; "Outside Coal Handling Equipment," by Dr. H. M. Payne, consulting engineer, of New York City; "Fire-Fighting Equipment," by William Conibear, of the department of safety, Cleveland-Cliffs Iron Co., and "Mechanical Loading Underground," by Lucien Eaton, superintendent of the Cleveland-Cliffs Iron Co. Many other reports will be read and addresses made, opening with an address on "What Standardization Has Done for the Coal-Mining Industry," by Colonel Warren R. Roberts, former chairman of the general committee on coal mining of the congress' standardization division.

Coal Production Costs and Profits in Great Britain

Costs of production, output and proceeds of the mining industry in Great Britain during the first quarter of 1922, as published by the *Iron & Coal Trades Review*, are as follows:

Output		Gross Tons
Tonnage raised		57,633,631
Mine consumption		3,957,505
Miners' coal		1,462,795
Tonnage disposable commercially		52,213,331*
Costs of production:	Amount	Per Ton Disposable Commercially
Wages	£34,827,133	13s. 4.08d.
Stores and timber	6,742,627	2s. 6.99d.
Other costs	8,271,937	3s. 2.02d.
Miners' Welfare contributions	239,781	1.10d.
Royalties	1,622,953	7.47d.
Total costs	£51,704,431	19s. 9.66d.
Deduct proceeds from miners' coal	300,408	1.38d.
Net costs	£51,404,023	19s. 8.28d.
Proceeds: Commercial disposals	£54,367,927	20s. 9.90d.
Balance: Debits	.....	.....
Credits	£2,963,904	1s. 1.62d.
No. of workpeople employed		1,020,207
No. of man-shifts worked:		
(a) At the coal face		24,466,968
(b) Elsewhere below ground		25,798,084
(c) On the surface		12,971,262
(d) Total above and below ground		63,236,314
No. of man-shifts lost which could have been worked		6,171,819
		Cwt.
Output per man-shift worked		18.23†
Earnings per man-shift worked		11s. 0.18d.

* According to the Monthly Trade and Navigation Accounts, during the quarter, 17,639,766 tons were shipped for export and foreign bunkers, mainly from South Wales and Monmouthshire, Northumberland and Durham.

† The output per man-shift worked is based upon the tonnage of salable coal raised and the total number of man-shifts worked, including week-end and overtime shifts. Calculated as it has ordinarily been calculated hitherto, upon the total tonnage raised and weighed at the pit and the number of ordinary man-shifts worked, the output per man-shift for the country as a whole was about 19½ cwt.

The second quarter of 1922 opened under adverse conditions for the coal industry. Industrial demand was affected by the dispute in the engineering trade. At the end of June, however, the market improved and production for the three-month period was brought up to 57,552,000 gross tons, which is nearly equal to the production figure for the preceding quarter.

Lake Coal Loaded During Season to End of August*

Ports	Railroad	1922 Cargo	1922 Fuel	1922 Total	1921 Cargo	1921 Fuel	1921 Total	1920 Cargo	1920 Fuel	1920 Total
Toledo	Hocking Valley	1,746,575	47,846	1,794,421	2,964,611	78,923	3,043,534	1,811,256	34,760	1,846,016
	Toledo & Ohio Central	37,430	772	38,202	811,064	22,425	833,489	854,755	35,862	890,617
	Baltimore & Ohio	1,775,250	45,936	1,821,186	1,684,130	48,591	1,732,721	644,643	20,507	665,150
Sandusky	Pennsylvania	1,230,372	51,553	1,281,925	1,022,312	28,999	1,051,311	723,938	9,312	733,250
Huron	Wheeling & Lake Erie	13,403	2,565	15,968	1,265,489	33,712	1,299,201	1,123,653	61,928	1,185,581
Lorain	Baltimore & Ohio	32,852	24,147	56,999	1,980,137	75,192	2,055,329	1,723,662	131,549	1,855,211
Cleveland	Pennsylvania	97,291	45,016	142,307	1,577,958	57,749	1,635,707	445,663	80,582	526,245
	Erie	.....	.....	.....	310,858	10,402	321,260	140,609	10,617	151,226
Fairport	Baltimore & Ohio	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashtabula	New York Central	44,391	20,086	64,477	901,756	43,633	945,389	698,814	148,576	847,390
	Pennsylvania	55,201	40,335	95,536	1,732,874	55,739	1,788,613	820,404	55,126	875,530
Conneaut	Bessemer & Lake Erie	99,846	7,840	107,686	836,695	11,396	848,091	1,478,112	24,251	1,502,363
Erie	Pennsylvania	28,607	42,534	71,141	859,879	44,747	904,626	197,017	55,047	252,064
Total		5,161,218	328,630	5,489,848	15,947,763	511,508	16,459,271	10,662,526	668,117	11,330,643

* Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, Manager.

Legislation Passed in Ohio Would Control Coal Price at Mine and Bin

Final action on Ohio's coal-price-control legislation came shortly before noon Sept. 13, when Governor Davis signed the measure providing for appointment of a fuel administrator and setting up price-fixing machinery and that appropriating $1,047,000 for the use of the administrator in operating mines taken over under the bill and for payment of salaries. Officers of both houses of the Legislature had signed the measures that morning and officially adjourned the special session.

By the action of the General Assembly, Governor Harry L. Davis has the power at his disposal, effective whensoever he deems its use necessary, to create the necessary machinery to fix prices at the mines and at the coal bins and, if necessary, to seize the mines of the state to assure production and distribution.

The Senate enacted the law by a vote of 28 to 3 while the vote in the House of Representatives was 86 to 12. The enactment carries an emergency clause, both branches effecting this step by a margin of a single vote.

By virtue of the power conferred upon him Governor Davis is clothed with authority, at his discretion, to appoint a state fuel administrator, who shall make such an investigation as may be necessary to ascertain basic costs of production and distribution, in order to fix prices which may be charged by the producer and the dealer.

George T. Poor, of Cincinnati, chairman of the State Utilities Commission and present State Fuel Administrator, has been most frequently mentioned as the Governor's probable choice for the position.

What use the Governor will make of the new law depends on the course to be pursued by Ohio coal operators. If they refuse to recede from their present position that $5.50 at the mines is the lowest price at which they can sell their product, the Governor will appoint the administrator and set the machinery of regulation in motion.

It is not expected that the Governor will make use of his power to seize and operate the mines until a complete survey of the situation in Ohio by the administrator shows that coal cannot be obtained at prices fixed by him.

No official suggestion has been made as to the prices which may be fixed for the operators. Inasmuch as the Governor, in his efforts to reach a voluntary agreement with the operators prior to the calling of a special session, urged prices ranging from $3.75 to $4.80 a ton at the mines, it is believed that mine prices will be approximately those figures. There have been no indications as to retailers' prices.

Coal operators and dealers and mine-union officials opposed passage of the bill and now predict its failure as a law on the ground that the cause of existing high prices is the shortage of cars. Were there a full supply of cars and adequate motive power, prices would soon come down to normal, they aver.

While the ink on the bill to provide for price fixing was still damp, Hocking Valley operators came to the Governor with a proposition, presented by John S. Jones, head of the Sunday Creek Coal Co., and E. M. Poston, president of the New York Coal Co. It provides for a price of $3.50 at the mines when the car supply is 100 per cent, the price to increase 25c. on the ton each time there is a reduction of 10 per cent in the car supply, the maximum price to be $5. In the meantime Governor Davis intimated that the state would proceed with the organization of the Fuel Commission as provided in the new law.

Skillful Utilization of Reserves Was Achievement of H. B. Spencer

The most striking accomplishment of Henry B. Spencer in his handling of fuel distribution was the skillful way in which consumers were induced to utilize their reserves of coal. There has been no small amount of criticism of Mr. Spencer's acts, but to those who see the entire picture it is plain that it is entirely unfair to make Mr. Spencer the scapegoat for an impossible situation. It was apparent from the first that he would have to make bricks without straw. His job necessarily was a thankless one, since the character of his decisions obviously would offend many where one was pleased.

Despite these difficulties, many disinterested observers believe that the distribution plan as carried into effect by Mr. Spencer saved the consumers of the country many millions of dollars. It is true that the tangible effects of his organization hardly had begun to show themselves when production again approached normal volume, but the psychological effect of the distribution plan unquestionably was to hold prices within bounds. Large consumers were prevented from bidding against each other and means were found to relieve all cases of acute distress before serious disruption occurred.

It must be kept in mind that Mr. Spencer was not responsible for the general policy of distribution, which was framed prior to his appointment. He had no responsibility as to the prices which were agreed upon as fair. He was in charge of a distinctly new experiment in distribution. The situation was made particularly bad since there was a very limited quantity of coal available with which to meet the requirements of the country. The type of control was quite different than that exercised in 1919. When distribution is controlled at the point of consumption, relief can be given more promptly. In Mr. Spencer's case, however, control began at the point of production—distant from the point of consumption. In the best of times coal originating in the middle Appalachian region cannot be delivered in New England, in the Middle West or at the Lakes much under two weeks. Under the conditions such as existed during August, the delay in the movement from the mines to the point of consumption necessarily gave rise to complaints from impatient consumers.

Sight must not be lost of the fact that the acute emergency lasted only 23 days after Mr. Spencer took hold. As a result the accomplishments of the distribution plan were not fully apparent during the time that it was functioning.

There are those who characterize the work done under Mr. Spencer as an absolute farce. They characterize the whole scheme as a gesture, and a menacing gesture at that, in which a club was held in a menacing position in the effort to carry out the so-called voluntary agreement. The public utilities feel that the operators dominated Mr. Spencer's administration and as a result things were so manipulated as to sever effectively the consumers having low-priced contracts from their source of supply, thereby making it necessary for them to buy coal at the higher prices. It was the contention of the operators, however, that it would be impossible to keep the coal producers in line unless there should be equitable distribution of cars. Had the wishes of the public utilities been observed it would have meant a preferential car supply to mines with contracts. This, it is argued, would have disrupted the whole co-operative plan.

P. W.

New Tariff Increases Duties on Explosives

The new tariff bill transfers dynamite, black powder and other high explosives suitable for blasting, when put up in sticks, cartridges or other forms, from the free list to the dutiable list with a rate of 1½c. per pound.

Coal-tar explosives are carried in the new bill at a heavy increase over the duties in the 1913 tariff law and the supplemental rates adopted in 1916. These rates are 60 per cent ad valorem, based on the American selling price of a comparable product, plus 7c. per pound for two years, after which the duty shall be 45 per cent, American valuation, plus 7c. per pound.

Coal and coke remain on the free list, with a provision for a retaliatory duty equal to the duty any other country may impose on these products from the United States.

Lumber, including mine timbers, remains on the free list. Structural steel was increased to 0.20c. per pound if not assembled and to 20 per cent ad valorem if drilled, punched or assembled. Wire, nails, spikes, nuts and screws were increased over the 1913 rates. Steam engines were given a duty of 15 per cent ad valorem.

Coal Distribution Control Bill Goes to President; Probably Will Become Law This Week

With the approval by the Senate on Saturday, Sept. 16, of the conference report on the bill intended to prevent profiteering in coal and providing for the control of distribution, the measure was sent to the White House. The signature of the President probably will be affixed and the bill become a law during this week. Only twelve votes were cast in the Senate against the conference report on this bill, despite the fact that it was vigorously opposed by such influential members as Senator Underwood, minority leader, and Senator Sutherland, of West Virginia.

Senator Underwood contended that the emergency has passed and that, under the changed conditions, the Senate should not assume the great responsibility of the precedent established by this measure. He declared that the government could not undertake to regulate the prices of commodities every time the price level exceeded that which commonly is regarded as fair. He expressed doubt as to the success of the Fuel Administration during the war. While there may have been some reason for attempting this control under war conditions, he contended that there is no justification for it in peace times, especially when it is doubtful whether such control does not do more harm than good. He emphasized the fact that he intended no criticism of Dr. Garfield and admitted that certain phases of the Fuel Administration may have accomplished good, but, he declared, "it annoyed nearly every man, woman and child in the United States and seriously hampered the business of the United States."

Misses Profiteer, but Lands on Consumer

One of Senator Underwood's objections to the legislation is that it does not reach the profiteer but concentrates its penalties on the consumer. "No provision is made," he said, "for a jail sentence for the coal profiteer. The only way he will be punished is by the refusal of the Interstate Commerce Commission to back up cars to his door. On the other hand, the consumer—the man who is being frozen because he cannot get coal—is to be sent to jail, if perchance, he should lie a little about the coal he needs. I do not think it would be a very great crime for a man whose family is cold to exaggerate a little bit about the coal he will need to run his house during the winter. He will not exaggerate a great deal, because he will not want to pay present prices. If he exaggerates at all, the fuel distributor can send him to jail. The only question now involved is whether consumers will have to pay a dollar or two more a ton than they should pay. That is not a great emergency."

Senator Sutherland, in the course of his remarks, said: "It is a great mistake to pass this bill. It is establishing a precedent that will be very dangerous. It is in contravention of the Constitution. It will come before us many times to plague us when similar measures are attempted in the future for the purpose of fixing prices by governmental action.

Too Much Left to Opinion of Bureau Official

"The bill is intended to be retroactive in its effect. It is not even intended that contracts in actual existence shall be protected. When those contracts are tested in the courts they will be sustained, but so far as it can be done by the arbitrary act of a bureau official, those contracts will be abrogated and the coal diverted. The entire matter will rest upon the personal opinion of an underemployee of a bureau here in Washington as to whether or not the coal has been sold at a fair and reasonable price.

"This situation will cure itself in a short time in so far as soft coal is concerned. The entire difficulty would be solved more readily if the transportation companies and the shippers were authorized to proceed to get this coal to the market in the usual manner, according to methods that have been adopted after many years of trial and experiment."

Senator Reed, of Pennsylvania, among other things said: "Because for the moment what we call profiteering is unpopular, we have an effort to tear up the Bill of Rights of the Constitution; an effort to pass an ex post facto law; an effort to take from the owner of coal a part of the market value of his property without pretending to make compensation to him for what is taken. It is all attempted to be justified by the assertion of an emergency which now has ceased to exist. Every time anything goes up in price and some people wish to get it cheap, they will come rushing again to Congress to fix the price."

Senator Kellogg, of Minnesota, asked if it is not reasonable that some priority in the distribution of cars be given to mines willing to charge a fair price. "The so-called Fuel Administration," he said, "was nothing more than a board of inquiry to furnish the Interstate Commerce Commission with facts and to make recommendations. The commission has not the force, the time nor the facilities for doing that. The government has been carrying on similar activities for some time. This bill merely is designed to enlarge the powers of the Interstate Commerce Commission temporarily to meet a great emergency. I submit that this bill is not retroactive at all. There is no power in the commission to deny cars on account of anything that has occurred in the past.

Does Not Think Emergency Has Passed

"I do not think the emergency has passed. It is true that coal is being produced in considerable quantities, but it is not possible before Lake transportation closes to produce and transport a sufficient quantity of coal to supply the needs of the Northwest."

The Senate bill was not greatly changed in conference. The length of the period during which the act may remain in force was increased from six to twelve months. The word "extortion" was eliminated from the bill and the words "unjustly or unreasonably high" were substituted where reference was made to prices. As much as may be necessary but not to exceed $50,000 of the appropriation may be used to meet the expenses incurred since May 15 by the President's Fuel Distribution Committee. The full text of the bill follows:

Emergency Endangers Public Health

"That by reason of the prolonged interruption in the operation of a substantial part of the coal-mining industry in the United States and of the impairment in the service of certain carriers engaged in commerce between the states and by reason of the disturbance in economic and industrial conditions caused by the World War a national emergency exists which endangers the public health and general welfare of the people of the United States, injures industry and business generally throughout the United States, furnishes an opportunity for the disposition of coal and other fuel at unreasonably high prices, limits the supply of heat, light and power, threatens to obstruct and hamper the operation of the Government of the United States and of its several departments, the transportation of the mails, the operation and efficiency of the army and the navy, and the operation of carriers engaged in commerce among the several states and with foreign countries.

"Sec. 2. That the powers of the Interstate Commerce Commission under the act entitled 'An act to regulate commerce,' approved Feb. 4, 1887, as amended, including the Transportation Act, 1920, and especially under Section 402 of said Transportation Act, 1920, are, during the aforesaid emergency, enlarged to include the authority to issue in transportation of coal or other fuel orders for priorities in car service, embargoes, and other suitable measures in favor of or against any carrier, including vessels suitable for transportation of coal on the inland waters of the

United States which for such purpose shall be subject to the Interstate Commerce Act, or region, municipality, community, person, copartnership, or corporation, and to take any other necessary and appropriate steps for the priority in transportation and for the equitable distribution of coal or other fuel so as best to meet the emergency and to promote the general welfare, and to prevent upon the part of any person, partnership, association or corporation the purchase or sale of coal or other fuel at prices unjustly or unreasonably high. This act shall not be construed as repealing any of the powers heretofore granted by law to the Interstate Commerce Commission, but shall be construed as conferring supplementary and additional powers to said commission and as an amendment to Section 1 of the Interstate Commerce Act, and subject to the limitations and definitions of commerce controlled by said act, and all powers given said Interstate Commerce Commission shall be applicable in the execution of this act.

CREATES OFFICE OF FEDERAL FUEL DISTRIBUTOR

"Sec. 3. Because of such emergency and to assure an adequate supply and an equitable distribution of coal and other fuel, and to facilitate the movement thereof between the several states and with foreign countries, to supply the army and navy, the Government of the United States and its several departments, and carriers engaged in interstate commerce with the same during such emergency, and for other purposes, and for the further purpose of assisting in carrying into effect the orders of the Interstate Commerce Commission made under existing law or under Section 2 hereof there is hereby created and established an agency of the United States to be known as federal fuel distributor, whose appointment shall be made and compensation fixed by the President of the United States. Said distributor shall perform his duties under the direction of the President.

"Sec. 4. It shall be the duty of the federal fuel distributor to ascertain:

"(a) Whether there exists within the United States or any part thereof a shortage of coal or other fuel and the extent of such shortage;

"(b) The fields of production of coal and other fuel and the principal markets to which such production is or may be transported and distributed and the means and methods of distribution;

"(c) The prices normally and usually charged for such coal and other fuel and whether current prices, considering the costs of production and distribution, are just and reasonable; and

MUST ASCERTAIN WHO SHALL BE GRANTED PRIORITY

"(d) The nature and location of the consumers, and what persons, copartnerships, corporations, regions, municipalities or communities should under the acts to regulate commerce administered by the Interstate Commerce Commission, including the Transportation Act, 1920, in time of shortage of coal and other fuel, or the transportation thereof, receive priority in transportation and distribution, and the degree thereof, and any other facts relating to the production, transportation, and distribution of coal and other fuel; and when so ascertained the federal fuel distributor shall make appropriate recommendations pertaining thereto to the Interstate Commerce Commission from time to time, either on his own motion or upon request of the commission, to the end that an equitable distribution of coal and other fuel may be secured, so as best to meet the emergency and promote the general welfare. All facts and data within the possession of the federal fuel distributor shall be at all times accessible and furnished to the Interstate Commerce Commission upon its request. The Interstate Commerce Commission is hereby authorized and directed to receive and consider the recommendation of the federal fuel distributor, based upon his reports upon the foregoing subjects and any other information which it may secure in any manner authorized by law.

"Sec. 5. The federal fuel distributor may make such rules, regulations and orders as he may deem necessary to carry out the duties imposed upon him by this act, and may co-operate with any department or agency of the government, any state, territory, district, or possession, or department, agency, or political subdivision thereof, or any person or persons, and may avail himself of the advice and assistance of any department, commission or board of the government, and may appoint or create any agent or agency to facilitate the power and authority herein conferred upon him; and he shall have the power to appoint, remove, and fix the compensation of such assistants and employees, not in conflict with existing laws, and make such expenditures for rent, printing, telegrams, telephones, furniture, stationery, office equipment, travel, and other operating expenses as shall be necessary for the due and effective administration of this act. All facts, data, and records relating to the production, supply, distribution, and transportation of coal and other fuel in the possession of any commission, board, agency, or department of the government shall at all times be available to the federal fuel distributor and the Interstate Commerce Commission, and the person having custody of such facts, data, and records shall furnish the same promptly to the federal fuel distributor or his duly authorized agent or to the commission on request therefor.

"Sec. 6. That whenever the President shall be of the opinion that the national emergency hereby declared has passed he shall by proclamation declare the same, and thereupon, except as to prosecution for offenses, this act shall no longer be in force or effect, and in no event shall it continue in force and effect for longer than twelve months from the passage thereof.

FALSE REPRESENTATION SUBJECT TO HEAVY FINE

"Sec. 7. Every person or corporation who shall knowingly make any false representation to the Interstate Commerce Commission or the Federal Fuel Distributor or to any person acting in their behalf or the behalf of either of them respecting the price at which coal or other fuel has been, is being, or is to be, sold or bought, the inquiry being made for the purposes of this act, or whoever having obtained coal or other fuel through a priority order or direction shall dispose of the same for purposes other than those for which said priority order or direction was issued without the consent of the Interstate Commerce Commission, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine or not less than $1,000 nor more than $20,000: *Provided,* That any person or any officer or director of any corporation subject to the provisions of this act, or the interstate commerce act and the acts amendatory thereof, or any receiver, trustee, lessee, agent, or person acting for or employed by any such corporation, who shall be convicted as aforesaid, shall, in addition to the fine herein provided for, be liable to imprisonment in the penitentiary for a term not exceeding two years, in the discretion of the court. Every violation of this section may be prosecuted in any court of the United States having jurisdiction of crimes within the district in which such violation is committed, or through which the transportation is conducted, or in which the car service is performed, or in which such concession or discrimination is granted or given or solicited or accepted or received; and whenever the offense is begun in one jurisdiction and completed in another it may be dealt with, inquired of, tried, determined, and punished in either jurisdiction in the same manner as if the offense had been actually and wholly committed therein.

"Sec. 8. There is hereby authorized to be appropriated the sum of $250,000, available until expended, for the purposes of this act, including payment of personal services in the District of Columbia and elsewhere, and all expenses incident to organizing the work of the President's fuel distribution committee, and not exceeding $50,000 thereof shall be available for reimbursement and payment upon specific approval of the President of expenses incurred since May 15, 1922, in connection with the work of the President's fuel distribution committee organized for the purpose of helping to meet the emergency existing in the matter of fuel."

THE HERCULES POWDER CO., of Wilmington, Del., announces a reduction in its selling prices of high explosives and blasting powder effective Monday, Sept. 18.

Nash Counsels Better Co-operation Among Rocky Mountain Mining Men to Hold Trade

Oil and electricity have cut so deeply into the natural market for coal that today it is more than ever necessary for the operating men of a coal-mining company to work in thorough harmony with the selling end of the business, Harry F. Nash, vice-president of the Oakdale Coal Co., of Denver, Col., told the Rocky Mountain Coal Mining Institute at its fall meeting in Glenwood Springs, Col., Sept. 7 to 9.

The program of the meeting included a good deal of sport as well as some solid and interesting technical contributions, including these papers: "Electricity in Coal Mining," by Graham Bright, of Pittsburgh, Pa.; "Wire Rope in Mining," by J. F. Howe, of Worcester, Mass.; "Practical First-Aid Work," by W. F. Murray, of Dawson, N. M., and Mr. Nash's paper on co-operation. Mr. Bright was the particular star in swimming contests in the Glenwood pool, winning three events. In the water sports for mine inspectors Robert Snedden, of Wyoming, won the all-round swimming championship from John Crawford, of Utah, though Mr. Crawford was the victor in diving. Thursday night some absorbing coal-mining and industrial moving pictures were shown and Friday evening C. W. Darrow was the principal speaker at the annual banquet, over which Harry Nash presided as toastmaster. A dance followed the dinner. All sixty of the men at the meeting enjoyed the automobile rides through beautiful canyons near Glenwood Springs as the guests of the Lion's Club.

Potential Bituminous Output Greater Since War

"Within the last ten years," said Mr. Nash, "electricity and oil have largely displaced coal in industry, so that the use of bituminous coal is decreasing, relatively, though the potential production of bituminous coal has largely increased since the war. High wage scales and high freight rates make the delivered price of coal to the consumer so out of proportion to the cost of electricity and oil—and strikes make the supply of coal so uncertain—that industry is rapidly turning to electricity and oil. The energy in a ton of coal can be transported by electric current a distance of 250 miles for 78 per cent of what it costs to ship the coal in bulk by rail in the East, and for about 60 per cent of what it costs in our section of the country.

"The use of fuel oil, distillate and gasoline in industry has increased by leaps and bounds. Especially was this noticeable during the strike this year, as the large packing plants in Kansas City, Omaha and Sioux City, that formerly used nothing but coal, are now practically all using oil. This also applies to other industrial plants throughout our territory in Texas, Oklahoma, Kansas and Nebraska. Many railroads are using oil, as are also the smelters, cement plants, etc. Then years ago 100 per cent of the threshing in the State of Kansas was done with coal; today not over 25 per cent of it is done through that means—and so it goes all along the line. The use of our coal is being yearly more restricted in industry.

"In the case of domestic consumption the circle is also ever decreasing. In small towns and on farms kerosene, gasoline and wood are largely utilized for cooking. For the past four years along any country road it has been a common occurrence to hear a buzz-saw cutting old fence posts or timbers taken from creek bottoms. Many thousands of tons of coal are displaced each year through the use of corn and cobs. In larger towns gas plants have been installed, and many housewives use gas—in communities contiguous to natural gas, that is used for industrial and domestic purposes.

"The time has gone when industrial and domestic consumers or dealers are satisfied to buy anything that is black. Competition among the coal-producing states is keen, and will become more so. Eastern and Southern fields are turning out splendidly prepared coals of high quality, and with their lower freight rates to competitive territory, will entirely nullify the use of our Western coals unless harmony and co-operation exist between the sales department, the mine superintendent and his assistants.

"To be successful, the salesman must, first of all, believe in his product—must feel that he has a good article in point of quality and preparation to offer his customers—and must feel that the initial shipment a new customer receives will measure up to the salesman's representations—and all subsequent consignments to be similar. The salesman knows full well that if the coal shipped any customer is not up to standard, the next time he calls, the customer's reception to him will be far from pleasant; in short, the salesman will be unable to sell that customer again because through no fault of his, the salesman's representations have been false. A salesman further knows that a disgruntled customer will tell other dealers of the poor preparation of his coal, so that defeat stares him in the face wherever he goes, as he sees dealer after dealer ordering other coals of better and more uniform preparation.

"Probably the mine staff do not realize what trouble, expense and loss a company is put to in forwarding a car that has been refused by the original consignee. Let us take for example that a poorly prepared car of coal arrives at Brush, Col. The original consignee refuses it and the shipper diverts it to another customer at Holdrege, Neb., but not without paying a $6.75 reconsigning charge, plus any demurrage which might have accrued at Brush. Let us suppose the car is also refused by the consignee at Holdrege. In order to get rid of the shipment, the company is compelled to pay another reconsigning charge of $6.75, plus demurrage and the through freight charges to Holdrege, plus the local freight rate from Holdrege to wherever the car is finally placed. Ofttimes this local rate is greater than the sales price of the coal at the mine, so that the transaction is a total loss. To cap all of this, it is very often necessary to make a reduction in the mine price of the coal, to say nothing of telegrams and telephone calls incident to reselling the originally refused car of coal.

Cites Advantages of All-round Co-operation

"How much better it would be to have every car sent out from the mine absolutely free from rock, bone, slate or an excess amount of slack. How many operating men have had their attention called by someone at the mine to the fact that the coal in certain cars was not up to standard, but have taken the attitude that they were too busy to inspect those cars, have the coal cleaned, or even to notify the sales department of the poor preparation of coal in that particular car? How often have they known that the coal coming from certain places in the mine was being loaded dirty, but permitted the cars with this poor coal in them to be billed out, with the idea of "passing the buck" to the sales department? How many of them, when they receive a letter from the sales department, to the effect that customers are complaining of preparation, give the sales dedepartment a "bawling out" before their assistants, and do nothing to obviate further complaints? Harmony and co-operation between the mine and sales forces would stop this friction and insure larger revenue for each company.

"I am quite sure that the sales department will always gladly co-operate with the mine force. Most of the salesmen know the many troubles that confront those at the mine, as many of them have worked at the mines formerly in various capacities or have at least often visited the properties.

"As soon as the mines throughout the country have recovered from the recent shutdown, and the car shortage is a thing of the past, the coal operators of the West will have to "fine-comb" the territory for orders, and unless the operating departments see to it that nothing but clean and well-prepared coal is sent out, a decrease in annual production is sure to follow, rather than the increase we should expect."

Questions Propriety of Car Distribution Based on Price of Commodity Carried

The attitude of the Interstate Commerce Commission toward the emergency fuel distribution and price control act may be summarized from the testimony of Commissioner Clyde B. Aitchison to the effect that the commission never seeks jurisdiction, yet in every emergency finds the duty of coal distributor for the country thrust upon it, and if this is to be the case welcomes the additional authority granted it under the Winslow-Cummins act.

In giving his testimony before the House Interstate Commerce Committee, Commissioner Aitchison appeared more in the rôle of a member of the President's coal committee than as a member of the Interstate Commerce Commission yet because of his office it was generally considered by committee members that he spoke for the commission.

Commissioner Aitchison agreed with Representative Graham that the Federal Fuel Distributor, created by this emergency legislation, functions as a referee and that the executive or administrative duties of creating priorities or embargoes for the equitable distribution of coal and control of the price rests in the Interstate Commerce Commission.

"I do not think it is sound public policy as a business proposition that the Interstate Commerce Commission should have to do this," said Commissioner Aitchison, "yet it is thrust upon us every time we are confronted with a situation of this sort, to be the coal distributor of the country."

Later, Mr. Aitchison said: "I trust the position of the commission in the past that it never seeks jurisdiction is clearly in the minds of all the members of the committee."

Commissioner Aitchison asserted his opinion that the Transportation Act, in its emergency clause, gives the commission authority only to deal with emergencies of car service and not for sociological emergencies to distribute any commodity equitably among various sections of the country, and certainly not to order a distribution of cars based upon the price of the commodity these cars are to carry. He declared that Chairman McChord and, he believed, Commissioners Lewis and Cox, held a contrary position that the emergency clause "is broad enough to cover anything that may occur to us as being detrimental to the condition of the country," excepting the question of price, but that no other member of the commission, or its chief counsel, had voiced such views and that it was not the policy administered by the commission in its last efforts to handle the car situation two years ago.

The question of whether the Transportation Act is broad enough to include all emergencies excepting price control was the basis of considerable debate in Congress during passage of the Winslow-Cummins Act and it generally was answered in the affirmative. Senator Cummins, chairman of the Senate Interstate Commerce Committee, declared repeatedly that the only additional power conferred upon the Interstate Commerce Commission by the emergency legislation was the power to regulate car supply according to the price charged for coal at the mines.

Woodin Names District Fuel Administrators

William H. Woodin, State Fuel Administrator of New York, appointed his district fuel administrators last week, all of whom have accepted. They are Arthur S. Learoyd, of Thorne, Neale & Co.; Albert E. Cluett, Troy; Clarence B. Kilmer, Saratoga Springs; Samuel J. Koerbel, Binghamton; George D. Bonbright, Rochester; Arthur W. Lawrence, Bronxville; A. Conger Goodyear, Buffalo, and Carlton H. Chase, of Syracuse.

Mr. Woodin held several conferences during the week. In Albany he met his newly appointed district administrators and at a conference in New York City he met the representatives of the public-utility advisory group at which J. W. Lieb, vice-president of the New York Edison Co., presided.

Roderick Stephens, formerly president of the National Retail Coal Merchants' Association will represent the coal dealers on the staff of the State Fuel Administrator. Harry T. Peters, of Williams & Peters, was appointed Assistant State Fuel Administrator and Girvan M. Snyder will be the director of the bituminous coal division.

The first general order issued by the State Fuel Administrator prohibits dealers from delivering more than a two weeks' supply of domestic sizes or pea anthracite and then only if a customer has less than that quantity in his bin.

Defends Kentucky-Tennessee Operators

Editor *Coal Age*:

We refer to statement in your valued paper, page 256, Aug. 17, to say that we deny in toto the malicious implications contained in statement referred to.

Members of the Kentucky-Tennessee Coal Operators' Association have not profiteered to the extent that some others have, now active in spreading propaganda detrimental to the Kentucky-Tennessee membership. Our membership is in full sympathy with the Hoover plan to control prices and are co-operating fully to that end with federal and state committees.

The Kentucky-Tennessee Coal Operators' Association was the first to restore the 1920 wage scale in the mining industry and has no apology to make to anyone. Our operators knew, or thought they knew (time has proven their wisdom), the trend of the industrial conditions, that living costs were advancing and that there was a shortage of labor in the steel mills and that they were going to increase wages immediately following settlement of the coal strike, if not sooner. This information coupled with other well-known financial and economic facts indicated clearly we were entering another period of inflation and that the sooner employers realized the situation and made just wage adjustments, the better for all concerned.

The Kentucky-Tennessee Association is operating under a local wage agreement, open-shop basis with no *"check-off"*, being a modification of the Knoxville 1920 wage agreement, extended to run to March 31, 1924. The principal feature of the modification is the clause providing for wage adjustments from time to time to meet competitive conditions. Under this plan our mines have operated (barring car shortage) almost continuously until the railroad strike, July 1.

J. E. McCoy, Secretary,
Kentucky-Tennessee Coal Operators' Association.
Knoxville, Tenn., Aug. 26, 1922.

Government Department Reorganization to Be Carried Out; Plan Being Modified

There has not been the slightest surrender on the part of the administration of its intention to bring about practical reorganization of the executive departments of the federal government. A tentative report was laid before the President several months ago. It has not been made public due to the fact that the report as submitted is not acceptable to all of the department heads. It is believed, however, that certain changes in the plan can be made so as to obtain for it the unanimous support of the department heads or at least any dissenting opinions that may be offered will be of minor importance.

Were the report to be sent to Congress without the indorsement of certain of the department heads, it is recognized that the possibility of obtaining the legislation would be lessened. Moreover the legislative situation, since the report was submitted to the President, has been such as to preclude action on reorganization. In addition if the report were made public in its tentative form and before unanimous indorsement by department heads had been obtained, there is a feeling that it would invoke nonconstructive criticism and arouse agitation which would serve no good purpose.

It can be stated authoritatively that the reorganization proposal has not been laid aside indefinitely, but will be taken up at an early date.

C. E. Spens to Be Appointed Federal Fuel Distributor, Is Report

Washington, D. C., Sept. 19.—It was stated unofficially today that Conrad E. Spens, vice-president in charge of traffic of the Chicago, Burlington & Quincy R.R., would be appointed Federal Fuel Distributor under the distribution and price-control act.

Mr. Spens was director of transportation of the U. S. Food Administration in 1918 and early in 1919 was appointed assistant director of traffic of the U. S. Railroad Administration and later that year also assumed the duties of manager of inland traffic of the U. S. Wheat Corporation. He resumed his official position with the Burlington R.R. March 1, 1920. His home is in Chicago.

Though Anthracite Shortage Is Inevitable, Public Lags in Ordering Substitutes

Indifference marks the attitude of the general run of householders who depend on anthracite for their homes. The same is true of most of the small retail dealers. Ask the man on the street what he has done about his hard-coal supply for this winter and more than likely he will tell you that he has put in his order and that his dealer has told him that he will get the coal all right. "It may be a little later this year than usual, you know, because there has been a strike, but you will get it," is what they are being told. On the part of the householder there is little or no planning to use substitutes. The feeling seems to be that whereas some may have to do with soft coal, this particular fellow stands all right with his dealer and therefore will get his hard coal as usual. Many dealers feel the same way.

The general manager of a moderate-sized house in the East recently sent out a letter to his retail dealer trade, telling them that the supply of hard coal would be short this winter, and belated as well, and suggesting that dealers order some well-prepared soft coal. Just one out of twenty was the way they replied with orders. The other nineteen intended to wait, they said, util they had some orders on their books for soft coal. Then they would order. But, they were told, that would be too late.

The vice-president of another company, producing several million tons of bituminous coal, has found considerable interest in bituminous coal on the part of a certain class of consumers, notably large apartment houses, hotels, schools and churches and this interest is manifesting itself in orders through the dealers. The order starts with the ultimate consumer, however, and the dealer orders soft coal only when he has to.

Opinion is divided among the larger producers as to how serious the situation will be this winter because of the lack of production of anthracite this summer. There are some in high places who feel that they will be able to worry along without causing anyone hardship, that all they have to do is to distribute their larger sizes with care, that there is no cause for alarm. They are said to be advising the several state fuel administrations and officials at Washington to that effect. The result is that there has been little effort on the part of the public servants to whom the people look for advice to get the ordinary man interested in putting in substitutes for part of his winter's requirements. The figures of production and consumption of hard coal show, it is pointed out, that the country will have but little over 60 per cent supply and that even that will be late in reaching the consumer.

Last week Mr. Woodin, state fuel administrator for New York, ordered that dealers should in no case deliver a customer more than two weeks' supply. This is considered by the trade as an impossible and impracticable dictum. Two weeks' supply may be, and in most instances is, less than half a ton, they say, and add that they hope for modification setting a minimum of at least a ton. The trade feels that this order, however, has done much to awaken interest in the hard-coal situation.

Next to distribution, price of anthracite is bothering the trade. About half the "company" tonnage has announced circular prices. These prices are little different from those of last March. The Hudson Company has adopted the new range size and quotes that instead of nut and pea. The other companies are said to be disposed to want advances over last year, but as time goes on and the older prices come out, their chance of adding anything is lessened. Independents are feeling their way about with price ranges on the large sizes from $9.25 to $11 per gross ton, having one eye on the Pennsylvania state administrator and the other eye on Washington and the price-control legislation.

Deadlock of Conferees on Coal-Commission Bill May Endanger Its Passage

Washington, Sept. 19.—Failure of the conferees of the two houses of Congress to agree today on the terms of the bill to create a fact-finding commission to investigate the coal industry led administration leaders to express some fear that the deadlock might be prolonged, so as to endanger passage of the measure before the adjournment of Congress.

While this was considered an extreme view, it is true that members of both houses are extremely anxious to end the session this week and adjourn until the regular short session, which will begin Dec. 4. Although not considered strictly as emergency legislation, administration leaders are anxious to have the fact-finding bill enacted immediately in order that the commission may be named and begin its labors within a few weeks, so that there may be opportunity for full investigation before the time for the next wage contracts in the coal fields to be negotiated.

Conferees on the bill stated that the deadlock was over the scope of the instructions to the proposed commission, principally because of inclusion by Senator Borah, author of the Senate bill, of instructions to report on the wisdom or advisability of nationalization of the coal mines. The House conferees are vigorously opposed to this clause and also oppose inclusion in the Senate bill of instructions to report on various forms of standardization.

By J. N. Darling, in the New York Tribune

THE THREE NEW GOVERNESSES FROM THE CONGRESSIONAL EMPLOYMENT AGENCY.

Consolidation Coal Co. Gets Restraining Order in Georges Creek Region

In an effort to prevent riots and mob depredations in the Georges Creek region, the Consolidation Coal Co. obtained a temporary restraining order on Sept. 8 against the officers of District 16, which embraces the Georges Creek and Upper Potomac regions. The order names officers, local unions and members of the United Mine Workers as defendants, President Francis J. Drum being included in the list. A hearing is to be held on Sept. 28, at which time arguments will be made upon the question of making the injunction permanent. Many charges of lawlessness and intimidation as well as acts of violence are incorporated in the bill of complaint. The Consolidation and other companies operating in the Georges Creek region have refused to recognize the union in this field. Here as in the Upper Potomac district the coal strike is still officially in effect. The mines are being operated on a non-union basis with a short labor supply.

Fines and jail sentences were imposed on several individuals by Judge George W. McClintic of the United States District Court for the southern district of West Virginia during the course of a special term of district court held during the week ending September 9. These fines and sentences were imposed for violation of federal injunctions issued by Judge McClintic in recent months in connection with the coal strike, the defendants being adjudged in contempt in at least twelve cases.

According to reports received in Cincinnati the Kanawha operators who have refused to deal with the United Mine Workers because of the check-off and other features that are exacted are still firm in their stand and each week shows more and more men returning to work in their mines. Some who signed up at the time of the Cleveland agreement are taking stock of the situation and are voicing their regrets. The directing head of one corporation wrote his directors the other day that he had just laid out $1,600 to the union as check-off dues. "This means $30,000 a year that we are giving them as the sinews of war to fight us again when the time comes," was his concluding remark.

Storrow Quits as Massachusetts Fuel Chief; Phelan Appointed to Succeed Him

James J. Storrow has retired from the chairmanship of the state advisory fuel committee of Massachusetts. Governor Cox has accepted his resignation and has appointed as chairman James J. Phelan, who has been head of the Boston fuel committee.

The reason given for Mr. Storrow's resignation is that as he is chairman of the Governor's committee to work out a plan for grouping the New England railroads, it has become urgent that he devote his greatest efforts to preparing for the hearings to be held before long in New England by the Interstate Commerce Commission.

It was announced that the fuel committee will continue to seek a fair allotment of coal, an equitable distribution and to restrain prices.

Middle West Does Not Enthuse Over Ogle Plan for Legislative Conference

Leaders of the coal industry in the Middle West are deeply interested in but not seriously worried by the pending coal legislation in Congress. The idea of national price fixing and control is generally regarded as fraught with great possibilities for confusion, and the bills, now in committee on conference, that are aimed to create a coal-investigation commission are viewed with interest because they may very well produce governmental action that will completely overshadow the Lewis plan for a fact-finding body of miners and operators. In spite of the fact that some operators profess a desire for Congress to create a federal commission quickly—even before the Oct. 2 Cleveland meeting which President Lewis of the miners' union has arranged—there is general hesitancy in the West about rushing to Washington to express an opinion to the congressional committee which is working over the bill.

The suggestion of A. M. Ogle, president of the National Coal Association, for a meeting of operators either in Cleveland, Buffalo, or elsewhere, this week, to formulate a legislative plan did not receive a favorable reply in Illinois. The position of many operators is that if Congress is going to do something that will cast even greater confusion into the coal business, the quicker it does so and the greater the confusion thus caused, the sooner a normal condition will thereafter be attained.

Logan Mine Marcher Convicted of Treason; Ten-Year Sentence Recommended

Walter Allen, accused of being one of the union marchers on the unorganized mine fields of Logan and Mingo Counties in August and September of 1921, was adjudged guilty of treason against the State of West Virginia by a jury at Charles Town, W. Va., Saturday, Sept. 16. The jury, which was out forty-six minutes, recommended that a sentence of ten years in the penitentiary be imposed.

Allen's bond was increased from $10,000 to $15,000, and he was sent to jail until the higher bond is furnished. Attorneys for District 17, United Mine Workers of America, who conducted the case for the defendant, will appeal to the State Supreme Court for a writ of error.

C. Frank Keeney, president of District 17, United Mine Workers, is the next defendant scheduled for trial. His trial on a charge of murder will begin Oct. 23. He is also indicted for treason. There have been two previous convictions and one acquittal so far, the Rev. James E. Wilburt and his son John having been convicted of second degree murder and William Blizzard, the first to be tried, acquitted.

Herrin Grand Jury Resumes Its Work

On Monday, Sept. 18, the Williamson County grand jury, which has already indicted 59 men in connection with the massacre of a score of non-union miners and the wounding of 30 others at Herrin, June 22, resumed its investigation at Marion, Ill. It is expected the jury will finish its work soon. Of the 59 men indicted, many are still at large though the Williamson County jail with its remodeled tier of cells is about full. Men indicted for murder have been refused bail but those indicted for conspiracy to kill are out under bond given through lawyers for the miners' union. Prisoners are fed the best that the Marion restaurants can supply and at the expense of the union. This relieves Williamson County of part of the heavy cost of the case.

ARTHUR W. AMBROSE has been selected to succeed E. A. Holbrook as assistant director of the U. S. Bureau of Mines. Mr. Ambrose has been in the service of the Bureau since 1917, during which time he has risen through the various grades from petroleum technologist to chief of the petroleum division of the Bureau. His appointment as assistant director is an indication of the increasing importance of the Bureau's petroleum work. F. B. Tough, who has been serving the Bureau as chief supervisor of oil and gas leases, will succeed Mr. Ambrose as chief petroleum technologist. F. J. Bailey, the assistant to the director, under a rearrangement of the work, will take over a portion of the duties formerly assigned to the assistant director so as to allow Mr. Ambrose to give a portion of his time to the petroleum work. Salary provision has been made to compensate for Mr. Bailey's enlarged responsibilities.

STUYVESANT PEABODY, president of the Peabody Coal Co., automatically assumes the office of chairman of the board lately vacated by the death of his father, Francis S. Peabody. Thus is ended a great deal of speculation throughout the coal industry as to who the successor of the late Mr. Peabody would be. There remains a vacancy in the directorate of the company that has not been filled. No other changes in the personnel of the company are to be made, it is informally stated at the company's headquarters in Chicago.

Pledge Aid to Expedite Movement of Bituminous Coal; Distribution on Highest-Bidder Basis Decried

A pledge by leading commercial interests to aid in expediting the natural processes of increased supply, in order that the price of bituminous coal may be kept down and complete supplies be assured the householders and industry, was given at the conference on the bituminous coal situation held Friday, Sept. 15, at the Department of Commerce in Washington. At the same time determination was evidenced on the part of the government that advantage shall not be taken of the recent strike to exact high prices for coal. Officials of the U. S. Chamber of Commerce, the American Railway Association, the National Association of Manufacturers, the National Association of Purchasing Agents and the Public Utilities Associations met with the Secretary of Commerce, H. Foster Bain, Director of the U. S. Bureau of Mines, and C. B. Aitchison, of the Interstate Commerce Commission.

Secretary Hoover, in opening the conference, stated that the government welcomed the co-operation of the commercial and industrial community in solving the situation. It was most desirable, he said, that readjustments in prices and distribution take place by the natural means of increased supply and the holding down of consumption pending such increase. Protection for the public must come, he warned, by one means or another.

"In every situation such as this," the Secretary said, "there are social considerations which absolutely override the economic. The government cannot permit the distribution of coal this winter on a highest-bidder basis. That condition during the present emergency is an impossible social conception."

The Secretary stated that while the bill pending in Congress would give powers to embargo shipments of extortionate priced coal moving in interstate commerce, the federal government could exert no constitutional control over coal produced and sold within state boundaries or over speculation in interstate coal once it had reached its destination. Many states were taking drastic legislative powers in these domestic matters and unless the situation quickly improved no doubt many more of them would do so in order to protect their citizens.

It was agreed that the mines had ample capacity, even to the point of surplus, to meet the situation, that the problem was wholly one of transportation, and that the price would ameliorate if transportation could be increased and if in the meantime consumers would purchase only for their immediate needs.

The conference voted to organize voluntary campaigns for three major purposes:

(1) To induce manufacturers, utility corporations and buyers generally not to purchase coal beyond their day-to-day needs until the flow of coal becomes more normal.

(2) To persuade holders of coal contracts not to call for delivery on those contracts past their day-to-day needs. It was considered that about one-half of the coal in the country is under contract at normal prices and that a relaxation in the demand for this coal to the minimum daily requirements would increase the supply to the general public.

(3) To expedite movement of coal in every possible way.

The co-operation of the responsible coal operators in these matters will be sought.

The question of priorities in coal movement was discussed at great length, it being the consensus of opinion of the meeting that more mobility would be given to movement with less opportunity for speculation if the priorities to special uses, which have been necessary prior to the reopening of the union mines, should be relaxed and priority parallel with agricultural produce should be given to the movement of all coal without discrimination as to consignees. It was also pretty generally the opinion of the meeting that all reconsignment rights upon coal should be abolished in order to prevent speculation in coal.

It was decided to organize special committees under the leadership of the U. S. Chamber of Commerce to advance these purposes. Those present were:

Gerard Swope, president, General Electric Co., New York.
Harry Coulby, Pickands Mather Co., Cleveland, Ohio.
R. P. Lamont, American Steel Foundries, Chicago, Ill.
A. A. Landon, American Radiator Co., Buffalo, N. Y.
E. A. S. Clarke, Consolidated Steel Export Co., New York.
A. J. Brosseau, International Motors Co., New York.
J. P. Jackson, representing Public Utility Associations.
S. M. Vauclain, president, Baldwin Locomotive Works.
W. W. Atterbury, vice-president, Pennsylvania System.
R. C. Wright, general traffic manager, Pennsylvania System.
C. W. Shaeffer, chief of transportation, Pennsylvania System.
Samuel Porcher, general purchasing agent, Pennsylvania R.R.
J. N. Snider, coal traffic manager, New York Central Lines.
A. C. Needles, vice-president, Norfolk & Western Railway Co.
D. E. Spangler, superintendent of transportation, Norfolk & Western Railway Co., Roanoke, Va.
J. F. Porterfield, general superintendent transportation, Illinois Central Railroad Co., Chicago.
H. W. Miller, vice-president, Southern Railway System.
C. B. Kellogg, vice-president, Munson Steamship Lines.
J. E. Edgerton, president, National Association of Manufacturers, Nashville, Tenn.
Nathan B. Williams, associate counsel, National Association of Manufacturers, Nashville, Tenn.
Conrad E. Spens, vice-president, Chicago, Burlington & Quincy R.R., Chicago.
Charles K. Foster, vice-president, American Radiator Co.
E. E. White, president, E. E. White Coal Co., Glen White, W. Va.
Charles E. Bockus, president, Clinchfield Coal Corporation.
J. A. Campbell, president, Youngstown Sheet & Tube Co.
Daniel Willard, president, Baltimore & Ohio R.R., Baltimore.
A. C. Bedford, president, Standard Oil Co.
R. H. Aishton, president, American Railway Association.
M. J. Gormley, chairman, Car Service Division, American Railway Association, Washington.
Clyde B. Aitchison, commissioner, Interstate Commerce Commission.
John C. Roth, director, Bureau of Service, Interstate Commerce Commission, Washington.
H. Foster Bain, director, Bureau of Mines, Washington.
Alexander Legge, president, International Harvester Co.
Julius H. Barnes, president, U. S. Chamber of Commerce.
C. T. Starr and W. du B. Brookings, U. S. Chamber of Commerce.
F. R. Wadleigh, Department of Commerce.

Acting on the recommendations of Friday's meeting the Chamber of Commerce called on national business associations, local chambers of commerce and individual corporations and firms in an attempt to equalize and expedite the distribution of coal and to prevent prices from soaring to undue levels.

Full co-operation by all concerned, the Chamber declares, will relieve the federal and state governments of increasing regulatory legislation and will be welcomed by the administration as offering a promise that business itself will solve its problems without injection of government into its affairs.

Industries throughout the United States are asked in a letter which is being sent out over the signature of Julius H. Barnes, president of the Chamber, to lend their assistance to the effort by performance of the following acts:

Confining purchases of coal under present conditions as closely to current needs only as safety permits.

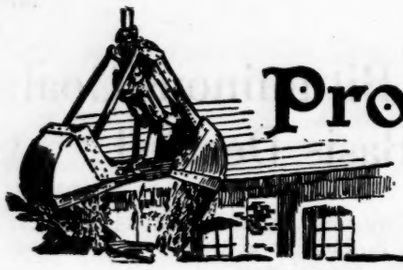
Suspending accumulation of advance stocks of coal until the present emergency pressure on production is relieved. This particularly applies to persons having low-priced contracts and who are, therefore, under no price pressure to withhold immediate delivery.

Unloading coal cars immediately and returning them to service.

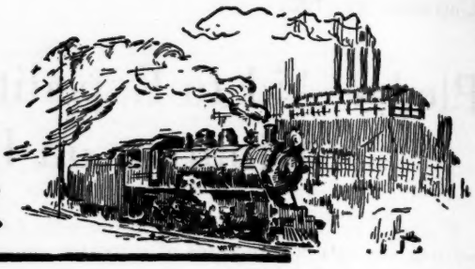
Promptly furnishing of material required for new railroad equipment or repairs.

Local commercial organizations are asked to obtain local information as to the range of prices for various kinds and qualities of fuel for the guidance of the members of the local organizations and to hold conferences with local wholesale and retail coal handlers, enlisting them in the cause of fair trade margins.

In his letter to industries, Julius Barnes, president of the Chamber of Commerce of the United States, says: "It is obvious that the bituminous-coal problem is one solely of transportation, as the productive capacity of the mines is able to care for the current needs and at the same time quickly to rehabilitate stocks. The railways are able to handle current supplies, and any shortage is due to the inability of transportation to handle both problems of current supplies and re-establishment of stocks during the readjustment of the railway strike. This situation greatly disturbs the normal readjustment of prices under the law of supply and demand."



Production and the Market



Weekly Review

Production is being held in check by the diminishing supply of cars and the congestion of loads. The surplus of empties on hand when the strike ended has dwindled to almost nothing and a shortage is now general. Car shortage usually enlivens the market, but so far this one has had little stimulating effect on prices. With the exception of the growing Midwest demand for domestic coal, caused by the approach of cool weather, bituminous coals weakened all along the line and *Coal Age* Index of spot bituminous prices declined to 412 on Sept. 18 from 427 last week. This represents an average mine price of $4.99 as compared with $5.17 the previous week.

The lowering prices continue to hold back orders. Consumers, anticipating that the rail strike is about over, argue that with the roads functioning properly they should be able to pick and choose their replenishments at prices that are more attractive than at present. So, while the quality fuels still move easily much of the tonnage now produced is sold under strongly competitive conditions. Nevertheless there is a wide range in quotations and a strong undercurrent of belief that the market is due before long for a long sharp upturn.

Jam of Lake Coal at Lower Ports

Priorities are taking most of the production. Shipments under Priorities 1 and 2 have eliminated free tonnage for general demand, particularly from those fields shipping to the Lakes. The pressure on Lake shippers has forced a jam of 12,000 loads at Erie ports awaiting dumping. Slow vessel movement, disability of machines and multitudes of pool classifications is responsible for the congestion, to offset which embargoes have been placed in several fields. These are only temporary, although they cause the priority shipper to cast around in a hurry for another outlet, often at a cut price.

The situation in the Northwest is improving. More coal is afloat and while Canadian, Lake Michigan and river points are obtaining more than their share, the upper docks are sure to benefit. The Northwestern buyers' strike shows signs of weakening. The Great Northern R.R. has just purchased 500,000 tons of Lake and rail coal, setting an example which it is hoped others will follow, so that the docks can cover on seasonal commitments while there is yet time. It is not anticipated that to exceed 50 per cent of the requirements on Lake Superior will be moved up the Lakes.

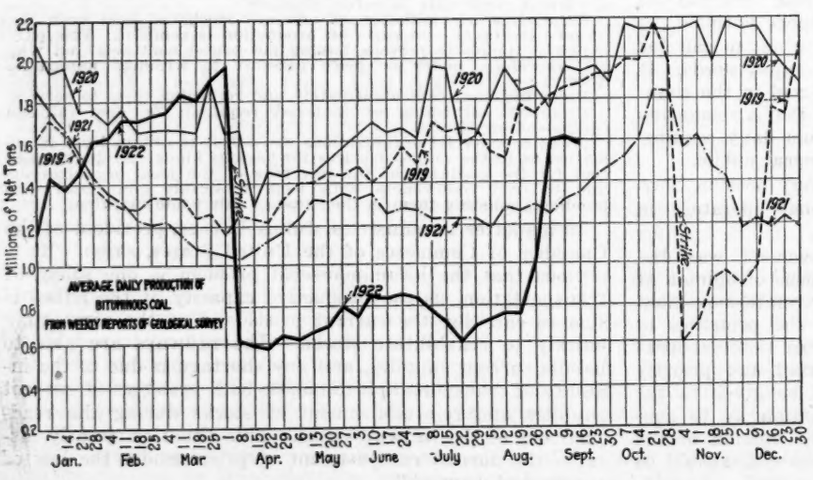
Heavy arrivals of British coals have congested the Atlantic seaports. Demurrage costs are large and it is evident that few new orders will now be placed. Southern coals via water are plentiful, especially since a N. & W. embargo on west-bound movement makes mandatory larger shipments to Hampton Roads.

Anthracite has commenced to move in good volume. Production is not expected to reach normal before Oct. 1 at the earliest, but mines are seeking to reach maximum work time as soon as possible. The resumption has drawn many cars from the soft-coal fields, where they had been used during the strike. But few prices have been announced although all sorts of independent quotations are rumored, ranging from 50c. above old company schedules up to $14 for the family sizes. Half of the companies have announced circular prices approximating their old schedules and absorbing the Pennsylvania State Tax. No settled policy of distribution has as yet been made. The entire movement so far has been eastward and no coal has been sent to the Lakes.

BITUMINOUS

Production of bituminous coal during the week ended Sept. 16 may reach 9,500,000 net tons, according to the Geological Survey, based on statistics at hand when the report was issued.

"Final returns on soft-coal production in the week ended



Estimates of Production

(Net tons)

Week ended:	1921	1922
BITUMINOUS		
Aug. 26 (*b*)	7,753,000	6,736,000
Sept. 2 (*b*)	7,606,000	9,359,000
Sept. 9 (*a*)	7,083,000	8,756,000
Daily average	1,336,000	1,652,000
Calendar year	269,836,000	241,676,000
Daily av. cal. yr.	1,273,000	1,336,000
ANTHRACITE		
Aug. 26	1,893,000	36,000
Sept. 2	1,800,000	38,000
Sept. 9 (*a*)	1,483,000	53,000
Calendar year	64,285,000	22,255,000
COKE		
Sept. 2 (*b*)	58,000	138,000
Sept. 9 (*a*)	60,000	139,000
Calendar year	3,900,000	4,368,000

(*a*) Subject to revision. (*b*) Revised from last report.

Sept. 9 show 8,756,000 tons, which, although less in the aggregate than for the week before, was at a higher daily rate, the holiday (Labor Day) considered," says the Survey. "For last week (Sept. 11-16) the output of bituminous coal is not expected to exceed 9,500,000 tons. Over the three-weeks period following general resumption of mining under the Cleveland agreement production has been at a rate less than 9,500,000 tons a week."

Lake Loadings Pass 1,000,000-Ton Mark

Priority movement to the Lakes has increased rapidly in the last few weeks. Dumpings were 1,058,806 net tons during the week ended Sept. 18—1,020,680 tons cargo and 38,126 tons vessel fuel. The season's movement is now 7,453,327 tons, as compared with 17,669,670 tons last year.

Tidewater dumpings at Hampton Roads increased to 341,558 net tons during the week ended Sept. 14 from 315,628 tons in the preceding week. The C. & O. piers showed a decline, the others a substantial increase. Accumulations at the piers are growing as the railroads are able to make quicker deliveries. New England is taking the bulk of the tonnage dumped, although the surfeited condition of that market is making it increasingly difficult to place spot coal.

TIDEWATER SHIPMENTS FOR AUGUST, 1922

(In thousands of net tons)

Destination	New York	Phila-delphia	Balti-more	Hampton Roads	Charles-ton	August Total	June Total
Coastwise to New England	40	4	5	711	1	761	710
Exports	1	1	..	57	3	62	80
Bunker	101	6	6	140	4	257	255
Inside capes	...	39	42	86	..	167	166
Other tonnage	122	..	..	445	6	573	626
Total, August	264	50	53	1,439	14	1,820	1,837
Total, July	215	53	24	1,484	61	.....	.....

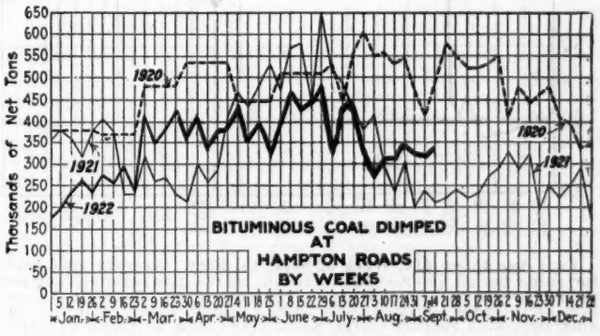
Tidewater business has been affected greatly by the strike, chiefly through the curtailment of exports. The total of 18,988,000 net tons dumped during the first eight months of 1922 was a third less than the average during the three years preceding. The principal factor in the decline was a drop in exports to 1,292,000 tons. During the corresponding period in 1920 and 1921 13,043,000 and 8,732,000 tons, respectively, were exported overseas. Dumpings for bunkers also decreased sharply to 3,171,000 tons, which was little more than half the 1921 figure. Waterborne shipments to New England were greater than in any of the three years

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Apr. 1, 1922 Inclusive	April 3 to Sept. 2, 1922 Inclusive	Week Ended Sept. 2, 1922
U. S. Total	45.6	55.7	....	....
Non-Union				
Alabama	63.5	64.6	(a)	(a)
Somerset County	55.5	74.9	46.6	46.7
Panhandle, W. Va.	55.3	51.3	46.7	60.8
Westmoreland	54.9	58.8	84.1	84.6
Virginia	54.8	59.9	71.8	51.1
Harlan	53.3	54.8	37.5	17.4
Hazard	51.7	58.4	45.6	12.2
Pocahontas	49.8	60.0	67.5	56.4
Tug River	48.1	63.7	70.5	54.5
Logan	47.6	61.1	56.2	28.1
Cumberland-Piedmont	46.6	50.6	19.6	33.4
Winding Gulf	45.7	64.3	59.2	37.0
Kenova-Thacker	38.2	54.3	70.1	61.7
N. E. Kentucky	32.9	47.7	45.4	25.2
New River‡	24.3	37.9	31.2	38.5
Union				
Oklahoma	63.9	59.6	16.1	42.6
Iowa	57.4	78.4	5.5	97.1
Ohio, Eastern	52.6	46.6	4.8	47.7
Missouri	50.7	66.8	6.0	53.8
Illinois	44.8	54.5	2.8	62.8
Kansas	42.0	54.9	19.9	84.5
Indiana	41.4	53.8	(a)	(a)
Pittsburgh†	41.2	39.8	(a)	(a)
Central Pennsylvania	39.1	50.2	16.5	72.7
Fairmont	35.3	44.0	8.6	41.8
Western Kentucky	32.5	37.7	60.2	45.7
Pittsburgh*	30.4	31.9	(a)	(a)
Kanawha	26.0	13.0	7.5	19.5
Ohio, southern	22.9	24.3	4.1	49.4

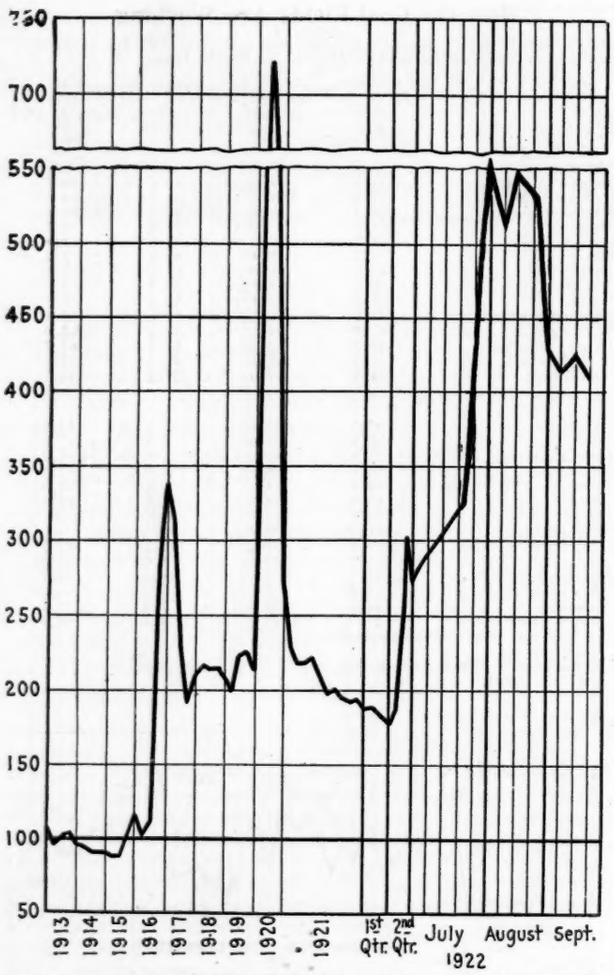
* Rail and river mines combined.
† Rail mines.
‡ Union in 1921, non-union in 1922.
(a) No report.



Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Aug.21, 1922	Sept.5 1922	Sept.11, 1922	Sept. 18, 1922†
Smokeless lump	Columbus	$6.10	$6.10	$6.40	*$6.00@$6.50*
Smokeless mine run	Columbus	6.00	5.50	5.75	5.50@ 6.00
Smokeless screenings	Columbus	5.90	5.35	5.65	*5.25@ 5.75*
Smokeless lump	Chicago	6.85	6.40	6.10	**5.00@ 7.50**
Smokeless mine run	Chicago	6.25	6.25	6.00	*4.75@ 7.00*
Smokeless lump	Cincinnati	5.75	5.60	7.00	*6.00@ 7.00*
Smokeless mine run	Cincinnati	5.50	4.75	5.50	5.00@ 6.00
Smokeless screenings	Cincinnati	5.15	4.40	5.50	5.00@ 6.00
*Smokeless mine run	Boston	8.70	9.00	8.35	*7.90@ 8.25*
Clearfield mine run	Boston	7.60	5.00	5.00	*4.00@ 4.75*
Cambria mine run	Boston	8.75	6.00	5.50	*4.50@ 6.00*
Somerset mine run	Boston	8.00	5.25	5.10	*4.50@ 5.25*
Pool 1 (Navy Standard)	New York	....	....	....	5.00@ 5.75
Pool 1 (Navy Standard)	Baltimore	....	....	....	5.25@ 5.75
Pool 9 (Super.Low Vol.)	New York	8.00	5.75	5.25	*4.50@ 5.00*
Pool 9 (Super.Low Vol.)	Philadelphia	8.25	5.85	5.60	5.50@ 5.75
Pool 9 (Super.Low Vol.)	Baltimore	....	6.25	6.10	*5.00@ 5.25*
Pool 10 (H.Gr.Low Vol)	New York	7.50	5.35	4.80	*4.25@ 4.50*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	8.00	5.60	5.30	*5.00@ 5.25*
Pool 10 (H.Gr.Low Vol.)	Baltimore	7.75	5.85	5.75	*4.75@ 5.00*
Pool 11 (Low Vol.)	New York	6.50	5.10	4.35	*4.00@ 4.25*
Pool 11 (Low Vol.)	Philadelphia	7.75	5.10	4.85	4.75@ 5.00
Pool 11 (Low Vol.)	Baltimore	7.75	5.35	4.85	*4.25@ 4.50*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	....	5.15	5.15	*4.25@ 4.50*
Pool 54-64 (Gas and St.)	Philadelphia	6.60	4.75	4.60	4.50@ 4.75
Pool 54-64 (Gas and St.)	Baltimore	7.50	5.25	4.60	4.50@ 4.75
Pittsburgh mine run (St.)	Pittsburgh	....	....	4.65	4.50@ 4.75
Kanawha lump	Columbus	6.40	5.85	6.40	*5.50@ 6.00*
Kanawha mine run	Columbus	6.25	5.60	6.00	*5.25@ 5.75*
Kanawha screenings	Columbus	6.00	5.35	5.75	*5.00@ 5.65*
W. Va. Splint lump	Cincinnati	5.35	5.35	7.00	*6.75@ 7.00*
W. Va. Gas lump	Cincinnati	5.35	5.35	7.00	*6.75@ 7.00*
W. Va. mine run	Cincinnati	5.50	5.35	5.65	*5.00@ 5.75*
W. Va. screenings	Cincinnati	5.10	4.85	5.40	*5.00@ 5.50*
Hocking lump	Columbus	6.65	6.25	6.25	*5.50@ 6.00*
Hocking mine run	Columbus	6.25	5.25	5.65	*4.75@ 5.50*
Hocking screenings	Columbus	5.75	5.25	5.40	*5.00@ 5.50*
Pitts. No. 8 lump	Cleveland	6.10	5.50	5.75	*4.75@ 5.00*
Pitts. No. 8 mine run	Cleveland	6.10	5.25	5.10	*4.50@ 4.75*
Pitts. No. 8 screenings	Cleveland	$6.10	$5.25	$5.10	*$4.50@$4.75*
Midwest					
Franklin, Ill. lump	Chicago	....	5.05	5.40	*5.25@ 5.50*
Franklin, Ill. mine run	Chicago	....	4.65	4.75	4.50@ 5.00
Franklin, Ill. screenings	Chicago	....	4.25	4.40	**4.35@ 4.50**
Central, Ill. lump	Chicago	....	4.95	4.95	**4.90@ 5.25**
Central, Ill. mine run	Chicago	....	4.50	4.50	4.35@ 4.75
Central, Ill. screenings	Chicago	....	4.30	4.30	*3.50@ 3.75*
Ind. 4th Vein lump	Chicago	....	5.25	5.25	5.00@ 5.50
Ind. 4th Vein mine run	Chicago	....	4.85	4.85	4.65@ 5.00
Ind. 4th Vein screenings	Chicago	....	4.75	4.60	4.50@ 4.75
Ind. 5th Vein lump	Chicago	....	5.10	5.10	4.90@ 5.25
Ind. 5th Vein mine run	Chicago	....	4.65	4.65	4.50@ 4.75
Ind. 5th Vein screenings	Chicago	....	4.40	4.40	4.25@ 4.50
Standard lump	St. Louis	....	4.65	4.65	**4.25@ 5.25**
Standard mine run	St. Louis	....	3.90	2.85	**3.75@ 4.00**
Standard screenings	St. Louis	....	3.75	3.35	*2.75@ 3.00*
West Ky. lump	Louisville	6.00	4.25	4.75	4.50@ 5.00
West Ky. mine run	Louisville	6.00	4.25	4.25	4.00@ 4.50
West Ky. screenings	Louisville	6.00	4.25	4.00	3.75@ 4.25
West Ky. lump	Chicago	6.00	4.25	4.25	3.50@ 5.00
West Ky. mine run	Chicago	6.00	4.25	4.25	3.50@ 5.00
South and Southwest					
Big Seam lump	Birmingham	4.25	4.75	3.95	*3.45*
Big Seam mine run	Birmingham	4.25	4.00	3.30	*2.60*
Big Seam (washed)	Birmingham	4.25	4.00	3.80	*3.10*
S. E. Ky. lump	Chicago	6.15	4.25	4.25	3.50@ 5.00
S. E. Ky. mine run	Chicago	6.00	4.25	4.25	3.50@ 5.00
S. E. Ky. lump	Louisville	5.90	5.00	6.25	**5.75@ 7.50**
S. E. Ky. mine run	Louisville	5.75	5.00	5.65	5.25@ 6.00
S. E. Ky. screenings	Louisville	5.65	4.90	5.25	**5.00@ 6.00**
S. E. Ky. lump	Cincinnati	5.90	5.50	7.00	*6.50@ 7.25*
S. E. Ky. mine run	Cincinnati	5.75	5.25	5.50	*5.00@ 5.75*
S. E. Ky. screenings	Cincinnati	5.10	4.85	5.40	*5.00@ 5.50*
Kansas lump	Kansas City	....	6.00	6.00	**6.00@ 6.50**
Kansas mine run	Kansas City	....	5.00	5.00	5.00
Kansas screenings	Kansas City	....	2.60	2.75	*2.00@ 3.25*

*Gross tons, f.o.b. vessel, Hampton Roads.
†Advances over previous week shown in **heavy type**, declines in *italics*.
NOTE—Smokeless prices now include New River and Pocahontas.



Coal Age Index 412, Week of Sept. 18, 1922. Average spot price for same period $4.99. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. (Pittsburgh District prices not included in figures for last week.)

Car Loadings and Surplusages

Cars loaded:	All Cars	Coal Cars
Week ended Sept. 2, 1922	931,598	149,487
Previous week	890,838	110,030
Same week a year ago	831,288	154,586
Surplus cars:		
Aug. 31, 1922	70,455	54,566
Aug. 23, 1922	120,961	96,405
Same date a year ago	246,740	130,596

preceding because of the necessity for replacing all-rail shipments which were shut off by the strike.

CUMULATIVE TIDEWATER SHIPMENTS, JANUARY TO AUGUST, 1919–1922
(In net tons)

Destination	1919	1920	1921	1922
Coastwise to New England	5,513,000	6,872,000	5,246,000	7,310,000
Exports	4,535,000	13,043,000	8,732,000	1,292,000
Bunker	4,509,000	5,687,000	6,252,000	3,171,000
Inside capes	2,341,000	2,151,000	2,071,000	1,980,000
Other tonnage	6,992,000	5,754,000	4,798,000	5,235,000
Total	23,890,000	33,507,000	27,099,000	18,988,000

ANTHRACITE

Production of hard coal started promptly after the ratification of the wage agreement on Saturday, Sept. 9. Work was resumed the following Monday and the loadings—1,783 cars—while not large, are encouraging evidence of the operators' determination to lose no time in filling the gap caused by the strike. In the last week of the strike 53,000 net tons was loaded, principally steam sizes dredged from the rivers.

Consumers are not yet clamoring for coal but with the first cool weather the distribution problem will be a difficult one. Small lots only, of course, will be doled out for many weeks to come. Not much substitute fuel has been purchased, as the feeling prevails that bituminous coal can be had quickly if needed.

COKE

Production of beehive coke was 139,000 net tons during the week ended Sept. 9, practically unchanged from the preceding week. Connellsville prices are unchanged, offerings are very light and the takers of merchant coke are largely miscellaneous users. Furnaces are only ocasionally in the market because of the prevailing high prices and variety of grades offered.

SHIPMENTS OF SOFT COAL FROM PRODUCING DISTRICTS

Net tons, assuming 50 tons to the car, based upon records of cars loaded, as reported by the railroads to the American Railway Association and as published by the Geological Survey

District	Week Ended			Average Daily, Week Ended				Days		
	July 22	July 29	Aug. 12	Aug. 19	Aug. 26	Sept. 2	Sept. 9	Sept. 11	Sept. 12	Sept. 13
Central Pennsylvania *a*	136,350	154,950	176,300	32,467	75,958	141,225	129,250	157,400	156,150	153,000
Western Pa., including Freeport *b*	132,800	149,700	155,950	26,341	39,325	61,292	90,000	115,900	117,900	118,000
Greensburg-Westmoreland *c*	178,400	205,750	212,500	32,417	39,425	44,225	46,192	55,150	50,150	45,500
Connellsville & Somerset-Meyersdale *d*	248,050	315,450	340,450	57,141	58,742	59,750	60,800	67,200	63,050	68,750
South Fork and Windber *e*	18,700	23,400	26,700	4,567	8,042	14,842	14,633	18,700	19,250	16,750
Total Pennsylvania	714,300	849,250	911,900	152,933	221,492	321,334	340,875	414,350	406,500	402,000
Georges Creek, Upper Potomac and Cumberland-Piedmont *f*	56,250	56,750	80,400	13,508	14,883	15,017	10,700	14,000	10,650	13,000
Fairmont & W. Va. Panhandle *g h*	118,500	99,900	124,100	31,584	87,191	100,383	98,034	139,000	125,400	120,650
Coal and Coke *i*	29,300	34,850	57,950	9,950	8,858	6,217	7,092	4,350	5,400	6,650
Kanawha and Coal River *j*	64,150	60,959	82,250	13,867	18,092	20,750	13,975	31,400	16,350	20,000
Logan *k*	134,000	117,100	203,200	29,733	27,225	26,708	27,100	28,600	32,100	24,000
New River (C. & O. New River Div.) *l*	115,400	91,600	123,800	22,908	19,367	18,642	17,558	21,050	16,800	14,000
Winding Gulf (Virginian) *m*	91,350	89,750	56,400	15,500	17,383	18,825	14,683	32,150	15,000	14,500
Pocahontas and Tug River	281,900	358,900	426,550	67,183	71,067	67,583	49,408	61,350	59,750	45,100
Kenova-Thacker	101,300	110,100	144,150	27,442	27,400	26,308	22,675	37,950	19,800	7,650
Total West Virginia and Maryland	962,150	1,019,900	1,298,800	231,675	291,466	300,433	261,225	369,850	301,250	265,550
Eastern Kentucky *n*	259,500	284,600	358,950	38,975	51,733	51,467	50,875	78,900	37,300	58,000
Western Kentucky *o*	351,150	286,300	329,400	53,508	59,258	42,975	32,825	43,900	31,350	28,700
Tennessee *p*	69,750	61,750	85,850	12,250	16,800	14,492	13,567	21,600	14,900	8,550
Clinch Valley and S. W. Virginia *q*	117,650	115,000	130,300	23,650	22,475	21,433	21,792	32,800	25,500	18,700
Alabama and Georgia	294,450	310,850	328,900	54,575	50,842	44,166	44,833	62,000	59,050	56,000
Ohio	98,100	105,100	115,050	28,750	94,408	115,508	109,350	144,950	124,850	110,000
Indiana-Illinois	11,150	10,500	11,850	3,183	79,308	330,008	275,208	411,350	337,400	310,000
Iowa, Mo., Kans., Okla., Ark., & Tex. *r*	85,950	89,450	80,250	14,883	19,675	51,508	60,850	81,700	78,700	86,000
Colorado *s*	171,500	184,900	197,450	34,493	34,525	29,167	24,375	33,850	30,650	30,000
New Mexico *t*	94,000	38,700	41,200	6,708	6,034	7,225	9,683	10,950	9,700	9,500
Utah *u*	79,950	89,000	101,500	17,567	16,783	16,458	16,150	24,000	17,850	16,400
Wyoming, Montana and North Dakota	17,000	15,350	19,450	33,075	10,584	40,151	39,792	53,700	49,600	43,900
Washington	21,250	23,300	22,850	3,950	3,708	3,983	4,200	8,000	7,900	5,400
Michigan	0	.....	0	0	1,475	3,892	3,592	4,800	4,050	5,100
Grand total, bituminous shipped	3,347,850	3,483,950	4,033,700	680,175	980,566	1,394,200	1,309,192	1,796,700	1,536,550	1,453,800

" For notes giving grouping of railroad divisions corresponding to producing districts, see page 147, *Coal Age*, July 27, 1922"

Foreign Market And Export News

British Prices Soften as American Buyers Withdraw

French Market Improves as Result of Diversion of British Coal to America, but Wages Are Still Vexing Issue—Labor Unrest Upsets German Trade.

British shippers feel the slump caused by the withdrawal of American buyers. Prices have dropped to a point where they are attracting new business from the Continent and South America. An attempt is to be made to effect a further reduction in British rail freights.

The French market has improved materially. Emergency business in America, secured by Great Britain, diverted much tonnage that had been entering France to the detriment of home fuels and mines have been able to clear their heavy pit-head stocks. The wage controversy still continues and has resulted in an ultimatum by the owners, announcing a cut in pay as the last resort.

Germany is in the throes of labor shortage and unrest. Production is not ample for her own needs and imported coal is flooding in, further depreciating the value of the mark.

Declining British Prices Attract More Continental Buyers

Special Correspondence.

British shippers are very active in filling all orders for the United States. This movement continues around 200,000 tons weekly. New business from this source is falling off rapidly, but prices have receded, attracting more buyers from the Continent and South America. Germany is seeking a heavy tonnage but shippers are cautious in accepting these orders because of Germany's unstable financial condition. Production during the week ended Sept. 2 was 5,204,000 gross tons, according to a cable to *Coal Age*, close to the record for the year.

The recent increases in the retail prices of household coal have led to much speculation as to the causes that prompted them. What has happened is this: Recent developments have led to an increase in demand for certain varieties of house coal produced at certain mines. The inevitable effect of an increased demand is the same in the coal trade as in every other industry for producing or manufacturing commodities—there is a tendency for prices to rise.

It is no longer a case of disposing of stocks and cutting losses, but of producing at something approximating an economic figure. It is not reasonable to expect colliery owners more than anybody else to sell at an actual loss. This explains the slight increase in prices, which, however, is sent only a fraction of the amount which has been taken off the price of domestic varieties since last autumn.

The failure of representatives of the collieries and ship-owners and the men to come to an agreement on the question of the three-shift system in respect of the northeastern ports has caused profound disappointment.

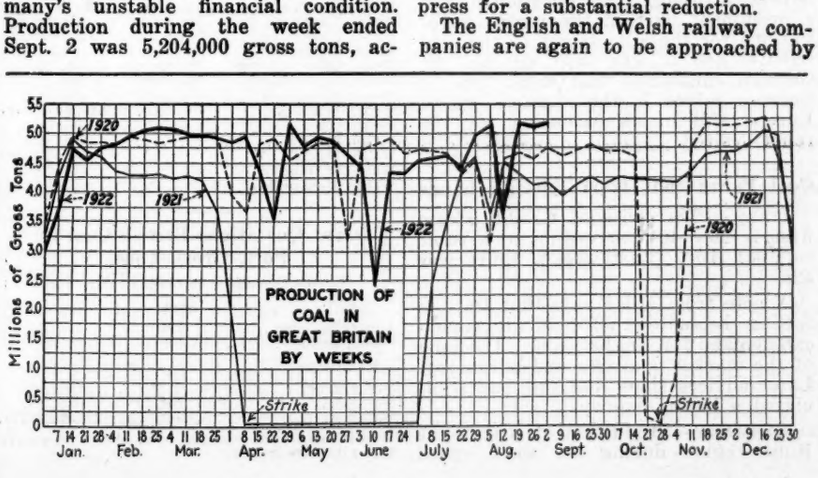
Overtime may do something to help matters, but it is by no means a satisfactory substitute for the third shift. It is all the more regrettable at a time when unemployment is so prevalent, for the additional "turn" would have absorbed an amount of extra labor.

As far as the collieries are concerned, the continuance of the two-shift system must tend to congest traffic, check output, and from time to time hold up operations.

The Mining Association has issued a statement pointing out that the Scottish coal trade is entirely unaffected by the reductions recently conceded by the Scottish railways to the representatives of the F.B.I. Except in respect to coal for shipment and for ironworks, the rates remain at the maximum attained in September, 1920, 100 per cent of the pre-war rate, plus 6d. per ton flat rate. The representatives of the Scottish coal owners met the Scottish railway managers recently to press for a substantial reduction.

The English and Welsh railway companies are again to be approached by the Mining Association of Great Britain with a view to obtaining a further reduction on the rates for the carrying of coal. These, under the agreement which took effect at the beginning of the month, are 60 per cent above pre-war level with the addition of a 2d. flat rate. It is the prevailing opinion in all branches of the coal trade that these rates should be reduced to 50 per cent and the flat rate abolished altogether.

It is understood that the subject will be reopened at the Railway Clearing House late this month.



July Exports, by Customs Districts

Customs Districts	Gross Tons: Anthracite	Bituminous	Coke
Massachusetts	44	.....	.....
St. Lawrence	3,247	8,393	260
Rochester	57	7,915	.....
Buffalo	9,478	58,749	2,778
New York	477	206	613
New Orleans	89	200	1,735
San Antonio	86	37	.....
El Paso	119	3,242	3
San Diego	4	9	.....
Arizona	782	891	25
San Francisco	26	1,425	16
Dakota	1,224	1,480	1,135
Duluth & Superior	969	2,523	120
Michigan	96	85,967	15,985
Vermont	.....	54	1,090
Philadelphia	.....	1,119	608
Virginia	.....	48,058	.....
Ohio	.....	122,756	.....
South Carolina	.....	19,025	.....
Mobile	.....	4,147	2,612
Washington	.....	90	60
Alaska	.....	1	.....
Georgia	.....	.....	300
Florida	.....	.....	30
Maine and N. H.	.....	.....	316
Total	16,698	366,287	27,686

Outlook Improves at Hampton Roads

The situation was without much change last week, some slight improvement in coal movement being noted. A better supply of coal was on hand at the piers, while a slight increase in dumpings took place during the week.

The market was somewhat easier, with prospect of increased movement on the three roads serving the port. The downward tendency in prices on the spot market continued, reaching as low as $8 during the week.

Some prospect of a revival of export business was seen. One cargo of 9,595 tons moved to the Canal Zone. All ships were being bunkered with fair regularity, none of the piers experiencing difficulty in serving the trade. Delay in service was being steadily diminished.

Hampton Roads Pier Situation

	Week Ended: Sept. 7	Sept. 14
N. & W. Piers, Lamberts Point:		
Cars on hand	628	1,354
Tons on hand	82,335	73,663
Tons dumped	143,785	171,837
Tonnage waiting	119,950	71,050
Virginian Ry. Piers, Sewalls Point:		
Cars on hand	1,064	1,193
Tons on hand	61,650	69,400
Tons dumped	70,665	85,965
Tonnage waiting	59,015	54,150
C. & O. Piers, Newport News:		
Cars on hand	472	539
Tons on hand	23,000	28,000
Tons dumped	67,361	47,161
Tonnage waiting	7,520	76,000

French Market Improves; Miners' Wage Cut Is Imminent

Special Correspondence.

The present selling activity of the Nord and Pas-de-Calais collieries remains satisfactory; house and industrial coals are in good demand, and pit-stocks are being further reduced.

A report from Rouen states that British coal arrivals in that port during August did not exceed a daily aver-

age of about 10,000 tons. They amounted to 426,000 tons in July. This seems to substantiate the assumption of a set-back in British competition.

German coal deliveries on reparation account have also been reduced, due at first to a strike of the Rhine bargemen and, subsequently, to a political move of Germany. This has been of some help to French coal mines. If the German plan had affected only her raw coal deliveries, it would not have been so objectionable, but it aimed especially at depriving French blast-furnaces in the East and in Lorraine of their coke supplies at a time when the iron market is just showing a better tendency. It is to be hoped that, in consequence of strong representations from the French government, the situation will soon become more normal again.

The representatives of the owners and miners of the Nord and Pas-de-Calais collieries met at Douai late in August. The owners declared that the reduction in rates proposed by the French Railroad Board were insufficient and that besides they were offset by similar reductions on Sarre coals, which would thus continue to compete on the Paris market.

The miners questioned the statement that the decrease of individual output was due to the introduction of the present working time. Finally, the owners' representatives, after having ascertained that no understanding with the men's delegates was possible, declared that if on Oct. 15 no other remedy had been found, they would be compelled to reduce the present rates of wages. The miners' delegates protested and the conference broke off.

Germany Must Check Flood of Import Coal by Working Longer Shifts

Special Correspondence

The coal situation in Germany has again become one of the chief topics of the day. Complaints are raised in all public and engineering meetings and the press, reminiscent of the great stringency in 1919. It is being pointed out that the reports coming from the coal districts show a steady decline in production, beginning with April, while imports are rising at an alarming rate.

Imported coal is mostly used in the shipping trade, which is growing steadily. Only a small tonnage, however, penetrates further inland, and an analysis of the situation shows little adequate foundation for alarm.

If imports have increased, it is largely due to the fact that they have been facilitated in every way. The coal tax, which on domestic coal is 40 per cent, has been abolished in the case of imported coal, thus bringing the price of the latter down to the German home market level. The loud and clamorous discussion of the coal situation is nothing more than a systematic propaganda. It draws its chief arguments from the decline of the daily output since March. The propaganda started early in April and has since then been put more and more prominently before the public.

For the decline in the Ruhr district several reasons are given. Vacations granted to miners are mostly taken during the summer, and numerous miners leave during the building season to take billets in the building trade. A large part of the increase of the force engaged in mining was drawn from this trade. Builders, anxious to draw trained hands back to their trade wherever they can get them, offer tempting wages, and miners are quick to exchange their strenuous work for occupation in the open. Building work terminates early in the fall, and the workmen as a rule go back to their previous vocation. Such fluctuations between the building trade and mining used to be customary in pre-war times, and had to be expected at the revival of building operations.

The June output was the lowest for some considerable time past.

GERMAN PRODUCTION IN JUNE

Kinds	Metric Tons
Bituminous coal	9,037,905
Lignite	10,486,949
Coke	2,378,478
Bituminous briquets	372,322
Lignite briquets	2,412,317
District	
Ruhr	6,797,703
Upper Silesia	979,890
Lower Silesia	438,641
Left of Rhine	442,910
Saxony	315,896

MONTHLY PRODUCTION OF BITUMINOUS COAL IN GERMANY

January	12,055,000
February	11,456,242
March	13,418,107
April	11,289,446
May	11,771,772
June	9,037,905

The drop in the June output was caused by the decline in Ruhr production, which has formed one of the chief topics during recent months, and the detachment of Polish Upper Silesia, which for the first time finds expression in the June returns. The 979,000 tons quoted still contains a considerable part of coal mined in Polish territory. The German production should have been listed at only 610,000 tons.

There is no doubt that since the detachment of Polish Upper Silesia, Germany has entered into a new era with regard to her coal supply. From a country with a decided surplus of coal she has become a coal-importing country. Her surplus was over 34,000,000 tons per year in pre-war times, while the shortage existing now is estimated at 39,000,000 tons.

Imports in June reached 790,000 tons, which is much lower than the figures rumored in trade circles. Of these imports the lion's share falls to Great Britain, which supplied in June 638,000 tons, according to German statistics.

The only way out of the difficulty consists in a systematic extension of working time, for which there is at present little chance, in view of the miners' attitude. This question played a prominent part in the recent negotiations for the adjustment of the coal tribute, and it was held against the German emissaries that work time in German mines is the shortest in all Europe and in its extension lay the relief desired.

Coal Paragraphs from Foreign Lands

ITALY — The price of Cardiff steam first is now 40s., according to a cable to *Coal Age*. Last week's figure was 42s. 3d.

A note from Milan says that Italy is feeling the indirect effect of the American demand for English coal. The tone of the market is strong and advancing. Later advices show that this has stimulated a better inquiry.

GERMANY—Production of coal in the Ruhr region during the week ended Sept. 3 was 1,729,000 metric tons, according to a cable to *Coal Age*, as compared with 1,819,000 tons in the preceding week.

SWEDEN — According to a message from Gothenburg, coal exports from Spitsbergen to Sweden this year, beginning with July, will be directed to Gothenburg instead of Narvik. The transport will be effected by Norwegian and German ships, which still charge considerably lower freight rates than Swedish vessels.

BELGIUM—The coal market shows signs of greater activity, even in the industrial section. The enormous stocks of coal in Belgium have been considerably reduced, owing to the long strike in the United States. Competition on the part of Great Britain is no longer felt so much on the Belgian market. The coke market has also improved as a result of consignments to France and Luxemburg.

Coal output in July was 1,669,290 tons, and stocks at the end of the month were 1,244,700 tons, a slight decline as compared with June 30. Coke furnaces produced 227,590 tons, the highest figure attained this year and nearly double the output for the corresponding month of 1921.

INDIA—The coal market is dull and rates are declining. Prices are: Bengal 1st., Rs. 30; Bengal good second, Rs. 27; British, Rs. 38; African, Rs. 26.

NEW SOUTH WALES — Coal shipped from Newcastle outside the state during June amounted to 347,273 tons, as compared with 362,012 tons in June, 1921.

Pier and Bunker Prices, Gross Tons

	Sept. 9	Sept. 16†
PIERS		
Pool 10, Philadelphia	$9.25@$9.75	*$8.50@$9.00*
Pool 11, Philadelphia	8.50@ 8.75	*8.00@ 8.75*
Pool 10, New York	9.00@ 9.25	*8.00@ 8.50*
Pool 11, New York	8.50@ 8.75	*7.75@ 8.00*
Pool 1, Hamp. Roads	8.50@ 8.75	*8.00@ 8.25*
Pools 5-6-7 Hamp.Rds.	8.50@ 8.75	*8.00@ 8.25*
Pool 2, Hamp. Rds	8.50@ 8.75	*8.00@ 8.25*
BUNKERS		
Pool 10, Philadelphia	$9.50@10.00	*$8.75@$9.25*
Pool 11, Philadelphia	8.75@ 9.25	*8.25@ 9.00*
Pool 10, New York	9.25@ 9.60	*8.25@ 8.75*
Pool 11, New York	8.75@ 9.25	*8.00@ 8.25*
Pool 1, Hamp. Rds	8.50@ 8.75	*8.00@ 8.25*
Pool 2, Hamp. Rds	8.50@ 8.75	*8.00@ 8.25*
Welsh, Gibraltar	40s. 6d. f.o.b.	*40s. f.o.b.*
Welsh, Rio de Janeiro	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, Lisbon	43s. f.o.b.	**50s.** f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	42s. t.i.b.	42s. t.i.b.
Welsh, Algiers	38s. f.o.b.	**41s. 6d. f.o.b.**
Welsh, Pernambuco	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia	65s. f.o.b.	65s. f.o.b.
Welsh, Madeira	43s. f.a.s.	**45s. 6d. f.a.s.**
Welsh, Teneriffe	41s. f.a.s.	**43s. 6d. f.a.s.**
Welsh, Malta	44s. 6d. f.o.b.	*42s. 6d. f.o.b.*
Welsh, Las Palmas	41s. f.a.s.	**43s. 6d.** f.a.s.
Welsh, Naples	42s. f.o.b.	42s. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	52s. 6d. t.i.b.	52s. t.i.b.
Welsh, Constantinople	50s. f.o.b.	50s. f.o.b.
Welsh, St. Michaels	50s. t.i.b.	50s. t.i.b.
Welsh, Alexandria	43s. f.o.b.	43s. f.o.b.
Welsh, Port Said	49s. f.o.b.	**51s. 6d. f.o.b.**
Welsh, Oran	.....	40s. f.o.b.
Welsh, Fayal	.....	50s. ti.b.
Welsh, Dakar	.....	46s. 6d. f.ob.
Welsh, St. Vincent	.....	46s. f.a.s.
Welsh, Montevideo	.....	50s. f.o.b.

Current Quotations British Coal f.o.b Port, Gross Tons

Foreign Quotations by Cable to Coal Age

Cardiff:	Sept. 9	Sept. 16†
Admiralty, large	29s.	*27s. 6d.*
Steam, smalls	19s.	*18s. @ 19s.*
Newcastle:		
Best steams	24s. 6d @25s.	*24s.@24s.6d.*
Best gas	24s.	*23s. 9d.*
Best bunkers	21s. 6d.@22s.	**22s. 6d.@23s.**

†Advances over previous week shown in **heavy type**; declines in *italics*.

North Atlantic

Spot Prices Sag as Demand Drops and Receipts Mount

Consumer Nurses Belief That Heavy Offerings Will Produce Bargain Replenishment Prices—Car Shortage Handicaps Output—Market for British Coal Hard Hit.

Consumers are not taking more coal than they actually need for current use. Heavier receipts, coupled with the weaker demand, have lowered spot prices still further. The weakness is attributed to the consumer's belief that, with the rail trouble over, the volume of offerings will depress prices to a point where he may replenish his supply. The car shortage is proving more troublesome, however, reducing production at the recently reopened mines and it is hard to see how prices can go much lower. The anthracite resumption has also taken away many cars that had been used in the soft coal industry during the strike.

The market for British coal is hard hit and new business is scarce. Cargo receipts have been heavy and discharging is slow, resulting in heavy demurrage costs.

NEW YORK

The receipt of anthracite had its effect upon the situation. Buying was quiet throughout the week. Car supply is playing a prominent part in the situation. On the B. & O. and Pennsylvania it was estimated that there was about a 50 per cent car supply while along the Shawmut and B. R. & P. complaints had to do with locomotive equipment.

Southern coals came forward in good volume with quotations around $10.50, New York harbor. Considerable British coal arrived here during the week. Railroads and public utilities continue to receive it but it was reported toward the end of the week that the enthusiasm was dying down and that orders were not being placed so freely. During the period, Sept. 7-14, 19 vessels arrived in this port with 114,601 tons. While most of it was on order there were some free cargoes which were offered to local houses around $8.25. Consumers were also offered Welsh anthracite at $14.80 per ton.

There were 1,446 cars at the local piers on Sept. 15, considerable of which was on order.

UPPER POTOMAC

Still further gains are being made in the output of the Upper Potomac as men gradually drift back to work. All the cars needed are being furnished, despite the shortage on other roads. Although there are a few mines in operation in the Georges Creek region, most of the miners are still on strike. Some of the larger companies, however, are attempting to operate with varying degrees of success and a few companies have signed an agreement with the union.

FAIRMONT

Between a holiday at organized mines on Sept. 4 and a most acute shortage of equipment less coal was produced during the week ended Sept. 9. There was a plentiful car supply on the day following the holiday but as soon as the accumulation had been absorbed, the supply dropped again and many mines were forced to close down for several days at a time. Mines having orders in preferential classes were given cars for the most part. Lake shipments were on a fairly large scale. As far as spot coal was concerned the price ranged $4.50@$5.25.

CENTRAL PENNSYLVANIA

Operators and miners alike are reaping a big harvest and production is steadily increasing throughout the entire union section. In Somerset County, where the operators refused to sign the agreement, production is somewhat curtailed owing to the inability to secure a sufficient number of men.

A shortage of cars is already being felt and it is feared the pinch will seriously affect production before long. The reopening of the anthracite mines has already had the effect of taking cars from this field.

During the strike, many new operations in Clearfield and Cambria Counties were prepared for production and are now in operation and the capacity of the railroads entering these fields is taxed almost to the limit.

PHILADELPHIA

Car supply more than anything else is dominating the situation. The consumer having found the shippers anxious to accept orders, is now becoming somewhat anxious that deliveries have slowed down.

There have been moderate receipts. The Pennsylvania continues to give the best service, but this road is also beginning to feel the transfer of many thousands of cars to the anthracite trade.

Buyers in many instances are shying at making heavy commitments at present prices, fully believing that much lower figures are due. There has been a particular tendency for high-grade coals to become scarce, as the smaller consumer seems intent on buying the best now, after having put up with some very inferior fuel during the past few months.

Some of the central city buildings who had shifted to bituminous coal on account of anthracite shortage have been bothered with smoke, and are now inclined to try out oil. For the present winter this will not worry shippers and many still express the opinion that the increasing cost of oil will eventually greatly offset all of its advantages.

The end of the month will probably see the last of the British receipts, as no new business has been placed. It is difficult now to interest the larger consumers in this coal.

BALTIMORE

While nobody is laying in any material amount of soft coal for storage, this due both to the urging of producers and agents to allow as wide a distribution as possible and to the thought on the part of a number of consumers that they may get better prices later, demand is at present keeping well up with the receipts. This has a tendency to hold prices firm, except that there is a little wider distinction between classifications.

The trade feels that the sweeping embargo placed by Eastern railroads on freight competing with coal will speed up the movement that has been delayed by other freight awheel and clear the way for the rush of anthracite shipments that must take place if the public is to be protected.

Except for taking the English coals and some other substitutes, the usual burners of anthracite here have ignored the suggestion that they lay in stocks of soft coal. In many cases consumers who have taken British fuel report excellent results. On the other hand, some who bought with the expectation of getting practically all lump, and who received instead a broken-up coal through frequent handlings, have complained to their dealers.

West

SALT LAKE CITY

The agitation here against the recent increase in price has grown so severe that an official investigation may be made. There is even some talk of placing mining under the control of the public utilities commission by special legislation. The Salt Lake *Telegram* has led the attack from the first, centering upon the retailers because they have an organization whereas the operators of the state have none.

One company with mines in Wyoming has announced a reduction of $1, which brings its retail price back to $9. It is claimed that this coal is of an inferior grade, but its producers deny this. The agitation has hurt the retail business and customers are very hostile. The newspaper responsible for the trouble is trying to show that costs of operating are no higher than they were before the strike, if as high.

Production continues satisfactory, except as far as the car supply hinders.

KANSAS CITY

An ample supply is being produced in the Southwestern states to care for all demands. Much to the surprise of a great many, the railroads are handling the coal in an expeditious manner. Very little steam coal is coming in from outside fields.

The prices for domestic coal are higher than last year, due to the low prices on steam grades that meet competition with fuel oil. The higher grade of domestic coming from Arkansas and Oklahoma, commonly known as semi-anthracite, is being quoted $6@$8 f.o.b. mines and slack is going begging at $2.

Anthracite

East Gets Fresh-Mined Coal Soon After Resumption

No Lake Tonnage Shipped—Western Markets Not Likely to Receive Any for a While—Some Prices Named but Companies Not Releasing Coal Pending Their Own Announcement.

Fresh-mined coal put in a prompt appearance in Eastern markets following the resumption of mining. The entire movement so far has been eastward. No Lake tonnage has been shipped and little is anticipated before Oct. 1, while Western markets will receive little hard coal for some time.

Prices have been published by only half the companies as yet, and no settled policy of distribution has been made. The announced prices adhere approximately to the old circulars, absorbing the State Tax. Companies are not releasing their coal to dealers at destination pending their announcement of prices. Independent coal is moving on sales ranging $9.25 @$14 on egg, stove and nut.

BUFFALO

Some coal is said to be on the way, so that it remains to be seen what will be done with it. The administrator for this district has not given out what he intends to do. The local distributors, if allowed to place the coal as they think best, will give it out in small quantities until every consumer has some, but as there is no real need of it yet it is expected that most of the coal will be sent up the Lakes for awhile at least.

One point also to be covered is the price that the companies will make. It appears that even the independents do not know what to expect, for as yet they have declined to give out any prices.

NEW YORK

The delay of the larger producing companies in announcing their prices at the mines for the various sizes occasioned some uneasiness among the retail dealers. Coal has been coming forward in increasing volume since early morning of Sept. 12, when the first shipment, consisting of 30 cars, arrived at Perth Amboy.

Retail dealers took in whatever coal they could get without waiting for the prices. Independent operators on the other hand announced their quotations, some stating they were only temporary. For domestic sizes they ranged from $9.50 upward, the general average being around $10. Some few operators were reported as quoting $11@$12. Pea quotations ranged $8@$9; buckwheat, $6@$6.25; rice, $5@$6; barley, $2.75@$3.25.

Many consumers of anthracite have apparently put in a supply of bituminous coal to tide them over until anthracite is more plentiful. Because of this retail dealers do not look for much of a rush before it is time to start furnaces.

BOSTON

Retailers are much relieved to find that barges are beginning to be assigned at the Philadelphia and New York piers. The process will be slow for awhile, but it is something to have a light gain in output from day to day.

Originating companies are slow in announcing prices. Eight dollars and fifteen cents has been named by one producer for grate, egg, stove and range (no chestnut or pea), while still another that was classified in 1918 as "independent" has named $9.25 as the figure for egg and stove.

ANTHRACITE FIELDS

There seems to be quite a shortage of labor at the mines, many of them reporting that they are short from 30 to 40 per cent. Many miners at the beginning of the strike went to Europe and have not returned.

It is extremely doubtful if the mines will be able to reach production before the end of the month. Six of the Glen Alden mines in the vicinity of Scranton have remained closed on account of the Kohler Mine Cave Law. The company is afraid to open these as there is considerable danger of caving the surface.

PHILADELPHIA

Some coal is now arriving in the city, being evidence of the railroads' intention to give the best of service.

The one drawback to better shipments is that the mines have only been able to reach about 60 per cent of their production, due to lack of men. It is believed that normal production will not be approached before Oct. 1.

The companies have not yet announced prices, although some independents have set schedules. At least one of the latter have announced $9.25 for egg, stove and nut, and $6.75 for pea, but most of the independents who have given out prices are 25c. higher than this on all sizes. There was quite a definite rumor that one of the small concerns was asking $14.

It would seem that the companies are intent on increasing their prices of last March by 25c.@30c., but are having difficulty to convince the various fuel authorities. Those who speak for the Government have repeatedly stated that there would be no increase over prices prevailing last March. It appears that the companies are determined to cover themselves for the State tax and something in addition for the losses suffered during the past five months.

BALTIMORE

Anthracite men here are figuring that they will probably get some fair receipts around the first of October. As a rule Baltimore gets some cold snaps in November and dealers realize that they have only about one month in which to make deliveries.

They are now figuring for the most part to hold down their deliveries to small lots. An open early winter will certainly prove a blessing not only to the public but to the coal men.

Coke

CONNELLSVILLE

Car shortages are now frequent and it is plain that the strike, which continues in a way, must take a remote place as constituting any factor in limiting the total output of the region. A very important proportion of the present working forces are men from out of the region, some imported by definite arrangement, some drifting in from union districts. Evictions have become common, as the houses are needed for workers.

Coke prices are quotable at precisely the same level as a week ago. There is a free movement in the foundry coke market, but of limited proportions. Offerings and demand are relatively light, many foundries being unable to pay prices now asked for pig iron.

In furnace coke the market is very narrow, sales being usually to water-gas producers, lime burners, bakeshops, etc. Furnaces are only occasionally in the market, which presents a far from inviting aspect. Only odd lots can be picked up, usually of indifferent grade, and any furnace attempting to operate on open-market purchases might have to use a dozen different cokes.

The *Courier* reports production during the week ended Sept. 9 at 77,320 tons by the furnace ovens and 20,010 by the merchant furnaces, a total of 97,330 tons, an increase of 7,030 tons.

BUFFALO

The situation does not clear up as fast as the bituminous coal trade does, for the standard ovens do not appear to get into operation readily, on account of the slow movement of coal. Jobbers still quote $14 for 72 hr. Connellsville foundry and $12.50 for 48-hr. furnace. Domestic coke has advanced to $11.50.

UNIONTOWN

Continued car shortage but without effect upon the coal market was the predominating feature of the industrial situation in the Connellsville region this week. Car placements for the week were very small, possibly about 20 per cent, and on two days the Pennsylvania placed none at all.

Recovery from the coal strike is now dependent upon the ability of the railroads to provide transportation. While the number of strikers who have returned to work is yet negligible there has been sufficient labor secured to load all the cars placed. The policy of evictions continues without abatement but instead of locating in tents near the plants, the evicted strikers are now gathering up their belongings and going to other fields.

Furnace operators are again looking toward the Connellsville region for coke requirements and there are several active inquiries for tonnage, with at least one contract closed for 15,000 tons, delivery in September.

Chicago and Midwest

Shortage of Cars Cuts Middle West Production

But Fields Working at 30 Per Cent Can Meet Fair Domestic and Light Steam Demand—Prices Generally Firm but Screenings Are Softening.

This region is having its troubles. Car shortage is the greatest of them. Railroads have been totally unable to supply enough cars to handle even a fair-sized output. Generally speaking, car supply has been about 30 per cent although it has averaged a little better than that in the central and northern Illinois regions where hauls average shorter and where several railroads are able to make most of their coal deliveries on their own lines without letting loose of their cars. The sharp restrictions upon production have reduced the available coal on the market to a point which makes it possible for a few jobbers to hike prices on domestic sizes although company circulars show few increases over those of last week.

Steam demand is still light. Buyers appear to expect a drop in the price of screenings. They were rewarded with a 25c. reduction on central Illinois and on the Chicago market every day or two big consumers were able to gather in large lots of mine run and screenings that had been shipped on consignment and were getting into distress. The price went as low as $2.90 in one case. St. Louis, with less coal available, steadily maintained as high a scale of quotations on most coals as prevailed in Chicago.

SOUTHERN ILLINOIS

Box car supply has almost put the Carterville field out of operation. This week will show about a two-day car supply. Some mines are getting less than that but few get better than three days. An average would show about 25 to 30 per cent.

Some of the mines are loading almost entirely railroad coal on account of the assigned car ruling, which means that railroads cannot assign cars to mines and give the mines more working time than competitive mines working on commercial business. This has practically tied up some of the big fields in Illinois and is the subject of much controversy at the present time.

Prices vary from day to day, but always going higher. There are no unusual labor troubles. Everything is quiet, excepting that the miners are uneasy over working time. Somewhat similar conditions prevail in the Duquoin field. Mt. Olive district gets about three days' car supply per week.

In the Standard field an unsettled condition exists over car supply and the priority ruling that everything must be billed out in class 2 of Order 23 of the I. C. C.

CHICAGO

Coal trade on the Chicago market maintained its comparatively even way during the past week. The demand for domestic sizes of Illinois and Indiana coals continued sufficiently strong to hold last week's increased price firm and the call for steam sizes continued so weak that some operators stored fine coal on the ground in order to use the scanty supply of cars for more profitable shipments. Practically no coal other than the output of those two states was traded in here. A little Pocahontas appeared, selling at prices ranging from the Hoover level of $4.50 plus 8 per cent, up to $7.50 for a little that got into the hands of jobbers. It is expected that smokeless coals will reach here in fair volume as soon as certain heavy priority orders are filled by the producers.

Steam buyers still are holding aloof and have been rewarded every day or two by the chance to pick up large lots of mine run and small sizes, that have been moving into this city on consignment more or less regularly. Although screenings prices on company circulars have not dropped below $3.50 in any case except the central Illinois field, these consignment shipments often have sold for as low as $3.25.

Output has been so restricted by car shortage on practically every railroad serving the Illinois and Indiana fields that the market glut predicted at the end of the strike by several big buyers, and still confidently counted on by them, has not yet appeared.

INDIANAPOLIS

A scarcity of cars is reported from virtually every coal county in the state. In the meantime the demand, despite the approach of cold weather, has not been very active. Both industrials and domestic consumers are waiting until the last minute to buy in the hope that coal will recede in price. Some quotations for Indiana coal at the mines have reached as high as $5.75 and foreign-mined coal is very scarce. One utility company with offices in Indianapolis reported quotations of $4.75 for screenings at the Indiana mines. At present quotations Indiana coal will cost the consumer about what Pocahontas did last year.

WESTERN KENTUCKY

It is claimed that unless Northern lines return cars more promptly, profits made in the summer may be turned into losses, as car supply is reported at around 17 per cent on the L. & N., and about 63 per cent on the I. C. The latter was furnishing 100 per cent prior to the reopening of Northern mines. The L. & N. supply is as bad as it was at the worst. Operators report good demand for all sizes, but are producing very little other than mine run.

Retailers are demanding lump more freely, while general demand for steam is picking up. With priority orders practically off the market, there is more and more coal moving for general use.

LOUISVILLE

With a full car supply it is felt that there would probably be some trouble in selling production. But with a car supply estimated at 10 to 15 per cent in eastern Kentucky, and between 15 and 20 per cent in western Kentucky, except on the I. C., which is reported to have about 65 per cent, operators are not making much headway in meeting demand, and so far there has not been much domestic stocking, as retailers are not supplied, and producers are not making prepared sizes in any amount. Eastern Kentucky production is so small that by the time contracts are filled and some Lake coal shipped, there is very little left for general utilities, gas and byproduct plants, steel and general industrials, to say nothing of the retailers.

With the whole country demanding coal, movement on shorter hauls will eventually slow down demand, but in the meantime prices are holding and are a little stiffer. Jobbers report that eastern Kentucky lump is quoted as high as $7.50 this week.

ST. LOUIS

The present week shows an improvement in the demand for domestic coal. Several of the big companies have suspended prices on Carterville, being unable to get it, even though they offer $6 at the mine. The dealers are forcing Mt. Olive coal, which retails at $7.50, though some dealers are charging slightly in excess of this. Standard is moving slowly on account of price, excepting on contract for apartments, and the like.

No smokeless and no Arkansas has arrived thus far, but some anthracite is promised for late in the season. Steam trade is quiet in the city but country steam trade is fairly good. Several steam plants are unable to get any coal on account of the priority ruling, even though the mines are reported as carrying no-bills.

The situation is an uncertain one and carries with it an uneasy feeling for the future.

Canada

TORONTO

There is no anthracite in sight and it is not expected that any considerable quantity will be received until after the close of navigation, as in the meantime all supplies available for Canada are likely to be sent up the Lakes. Domestic consumers show little disposition to use substitutes, buying bituminous as a rule only in small quantities for present needs.

Quotations for bituminous coal, f.o.b. cars at destination, are about $10.75 for 3-in. lump and $10 for slack, with some fluctuations from day to day. British coal is beginning to arrive. The Welsh coal purchased by the city will be reserved for emergencies.

Eastern Inland

Output Rests on Car Supply; Congestion Slows Deliveries

Consumer Stays Out Market Except for Current Needs—Lake Vessels Move Slowly, Causing Car Jam and Embargoes—Ohio Fuel-Control Bill Has Marked Effect.

Production is now measured by the car supply. Line congestion is slowing deliveries, but despite these warning signs the consumer remains out of the market, except for his day-to-day needs. Prices have declined further.

The slow movement of Lake vessels has caused a jam of 12,000 cars at the lower ports and has resulted in temporary embargoes along the lines. Priorities are taking most of the current output and these embargoes are forcing priority shippers to cast around hurriedly for an outlet, often at a cut price.

The passage of the Ohio fuel-control bill is an important development of the week and this, together with the end of the labor trouble on the B. & O., is mainly responsible for the apathetic buying attitude of consumers in that state.

COLUMBUS

With possible state control of prices in the future, buying has not been quite as brisk. Dealers are rather anxious, however, to replenish stocks, which are still at a low point, and since some householders desire immediate delivery retailers are asking for quick shipments. Retail prices are still at high levels, with Pocahontas selling around $11 and Hocking grades, $9.50@$10. Only a small amount of West Virginia coal is coming in.

Steam demand has fallen off. Purchasers are loath to pay the high prices and have been waiting for some sort of price control.

The Lake trade is considerably up in the air. Shippers are objecting to the prices asked and in many cases are holding off. But since priorities force the producer to ship a large tonnage to the Lake much of it is going begging.

Except for the Pennsylvania the car supply is far below 100 per cent. There is little hope for improvement in this situation and consequently firm prices are expected to prevail for sometime.

PITTSBURGH

Production is now at the limit of car supply. Mines of consumers are shipping their product with little if any interference by the distribution authorities, or confiscation by the railroads. Substantially all the merchant production is absorbed by priorities, and any producer shipping without a priority is almost certain to find himself without cars the next day.

There are about 12,000 loaded cars at Lake docks, due to slower vessel movement than was expected. Embargoes are being put on or taken off almost daily, sometimes on roads, sometimes on small divisions. The bulk of the merchant coal produced in the district is for the Lake trade. Placing of an embargo requires a shipper to find a new customer in a priority class and as coal must be moved promptly the regular price frequently has to be cut. Sales have been made at $4.25 and even $4, in such cases, the regular market, otherwise applying, being $4.50@$5, for Pittsburgh district steam coal.

There are reports of byproduct coal being sold at $5, but it is impossible to see how such sales could be effected in the case of the byproduct plants of the Middlewest which as a whole are simply steel works adjuncts not public utilities, and thus have no priority.

CLEVELAND

The settlement of the railroad strike on a number of important roads, and the passage of the coal control bill by the Ohio legislature have been developments of outstanding interest to the coal trade in this section. The immediate result of these events has been to further slow down the demand for industrial fuel. Consumers feel certain that the end of the strike will help to expedite coal shipments, and that the state machinery will cause quotations to work lower. The prevailing level in the last days has ranged $4.50@$4.75 for spot coal. This represents a decline of $1 in a week, and about $3 since the termination of the coal strike.

The natural operation of the market is expected to do more in regulating the price than the state. Hocking operators have offered to settle on a price of $3.50 at the mine, based upon a 100 per cent car supply. This proposal is being considered by state officials.

Lake shipments are being speeded up. For the season up to Sept. 11, 6,019,000 tons of cargo coal had been shipped, against 16,650,000 tons in the same period of 1921 and 12,201,000 in 1920.

EASTERN OHIO

Daily output during the week ended Sept. 9 was increased some 8,000 tons, notwithstanding no operations on Labor Day. Total production was 280,000 tons against a potential capacity for the 5 days of 517,000 tons. Cumulative figures for the calendar year indicate that 6,280,000 tons have been produced, with potential capacity placed at 21,637,000 tons, 29 per cent for the year. Now that the railroad strike seems to be in a fair way of settlement, a more optimistic tone is prevalent that not only a greater quantity of coal will be available in the open market, but that it may be had at lower prices than those now quoted.

No general or widespread demand for coal exists and steam users throughout this section continue to procrastinate so far as commitments for immediate delivery are concerned. Despite a sliding off of 50c.@$1 a ton on spot quotations during the week, no increase in inquiries is discernible.

Retail dealers have not yet been able to replenish their yards to meet the fall demand as little domestic fuel can be had from West Virginia and eastern Kentucky because of the railroad congestion at Ohio River crossings, and on railroads originating coal in those fields. However, relief from this situation is expected within the next few weeks.

Bituminous coal receipts at Cleveland during the week ended Sept. 9 were only 697 cars, 577 cars for industries and 120 cars for retail yards. Industrial receipts have declined during the past two or three weeks.

BUFFALO

Consumers refuse to be disturbed by the warnings of a car famine. The idea seems to be that the crisis is over and there is coal enough. Jobbers believe that the worst car shortage on record is near.

Still the consumer is holding off until even Pittsburgh, which always holds prices the longest, shows signs of weakening. Shippers believe that the failure to deliver coal promptly will soon convince consumers that it is the thing to buy freely now, before prices go up on account of a short supply.

Prices are naturally far from uniform. Some members of the trade, as well as consumers, find that the higher the price the better the coal is as a rule and the faster it moves. So shippers who have the confidence of the consumers are often able to get $6 in preference to a lower price and some coal is selling for even more than that. A fair quotation would be $6.25 for gas lump, $5.75@$6 for Pittsburgh ¾-in. and $5.25@$5.50 for all mine run, with slack scarce enough to command a few cents more than mine run.

DETROIT

Consumers display no eagerness to add to their stocks although the supply of coal available continues far short of normal requirements. According to railway figures, the daily receipts have averaged about 250 cars through the last month, while local representatives of the coal trade place the daily requirements at about 550 cars.

William W. Potter, Michigan Fuel Administrator; Charles F. Dunn, Wayne County Administrator, and the Detroit Coal Exchange have joined in an urgent appeal to the I.C.C., asking for modification of Service Order 23. It is their contention that the continuance of this order in effect serves to prevent obtaining coal for domestic consumers by requiring that the coal be sent to public utilities. No improvement has taken place in the situation as regards anthracite.

NORTHERN PANHANDLE

Some mines were unable to work for a time during the week ended Sept. 9, owing to a wreck on the main line of the B. & O. Then, too, Labor Day curtailed production to some extent. Little more than half the potential capacity of the district is being produced, due to lack of cars. There is a ready demand, much of which is for railroad fuel. Lake shipments are larger in volume.

Northwest

Lake States Feel Good Over Arrival of Coal

Vessels Deliver Heaviest Volume Seen Since Normal Times—Prices Remain High—Many Buyers Hold Out—Wise Men Say There Will Be No Drop.

There is better cheer in the states around the Lakes nowadays. During the past week more coal reached the docks than had arrived in any one week in a long time. The tendency of prices does not seem to be definitely upward any further for the time being and all in all conditions are much brighter.

Many buyers are still holding off, counting on a heavier flow of fuel within the next two or three weeks and a resulting drop in price. Others expect all-rail coal from the Midwest to reach here in great volume. Coalmen, however, feel that prices will not drop and that the Northwest will get just barely enough fuel for the winter. The first hard coal is yet to be loaded.

DULUTH

Twenty-six cargoes arrived during the last week, and twenty-four more are scheduled to arrive here before the week end. This will be by far the highest number of coal-laden ships to come here for several years within one week. This resumption of shipments is perhaps the best indication of the way the Northwest is recovering from the coal strike. Coal moves off the docks as fast as it arrives which insures against dock congestion. No contracts are being made by the dock men.

The first anthracite is expected Thursday, Sept. 21. It may sell at the old price. Fairly steady levels have been reached in soft coal. Youghiogheny, Hocking and Splint lump are selling at $12, run of pile at $11.50 and screenings at $7.50. Strangely, one dock is selling the last Pocahontas at the same price as high-volatile coal.

Since the Northwest got plenty of coal after the 1902 strike which ran a month later than this one, it seems certain enough will arrive this year.

MINNEAPOLIS

A few cargoes of coal have finally reached the upper docks. But instead of the 400,000 tons a week which were supposed to be the minimum there was hardly more than 25 per cent of it. It still appears that priorities do not assure coal. Buyers here apparently must bid high if they are to get coal. Car shortage has its inevitable effect on conditions generally.

Dock men are predicting a shortage that cannot be prevented. State officials are alarmed over this, and have issued proclamations urging economy of fuel and cutting down unnecessary consumption. They are looking to the Illinois all-rail fields for a supply at lower prices. All-rail coal from southern Illinois has been offered at $4.75@$5 at the mine, and has been refused in some cases as too high. Buyers are counting upon a break in the market and ample supplies of coal within a short time. They recall the situation two or three years ago, when after a panicky fall, the first of December saw all the coal that could be used, and prices slumping constantly.

Coal men fear that a bad situation is being made worse by the frantic efforts of politicians, doubtless earnestly seeking to find coal, but not forgetting the main chance of personal aggrandisement. They have pyramided the probable needs of the district to an impossible figure.

MILWAUKEE

Milwaukee is experiencing considerable relief from the soft coal shortage for eleven cargoes, aggregating 124,813 tons, have been received since last week's report. Anthracite is still an unknown quantity in this market, and the outlook for consumers is not good. Railroads have been refusing cars for carrying coal to interior points because of a federal order directing the prompt return of empty cars to the mines, but they have now agreed to provide cars to dock companies when shipments are authorized by the state committee.

A local coal company, which has a contract to deliver 54,000 tons of coal of a specified analysis has requested the city council to relieve it from compliance with the quality clause of the contract until it is able to secure coal which does not have to be shipped to the pooling ports established by the government. The company stands to lose approximately $200,000 if it is held to the contract.

The following figures show the receipts from all sources at Milwaukee from April 1 to Sept. 1, 1922, compared with the receipts during the same period last year:

	1922 Hard	1922 Soft
Cargoes	700	852,912
Carferry	18,188	64,946
Rail	.....	123,940
	18,888	1,041,798

	1921 Hard	1921 Soft
Cargoes	645,230	1,846,180
Carferry	50,868	82,309
Rail	1,995	243,888
	698,093	2,172,379

New England

Big Buyers Well Supplied, Market Lacks Life

Rehandling Piers So Congested That Few Shippers Send Coal Forward—Hoover Level Is Price Basis—Recession Expected Before Long.

There is no life to the current market. The larger consumers are surfeited with supply for a long time to come, and there is so much congestion at rehandling piers here that few shippers will take the chance of sending coal forward on the market. It is only with the utmost difficulty that contract deliveries are being received, for practically every unloading facility is being worked to the limit.

The west-bound embargo on the N. & W. is throwing an extra volume to Hampton Roads. The Hoover fair price now is the basis of trade and lower figures can be looked for within a reasonably short time. Several of the agencies are working hard to plug what holes are remaining and there is every reason to think that September quotas will be amply filled by the end of the month.

At this writing there are seventeen steamers in the harbor with British coal awaiting berth, and since but two or three of these are for utilities or retail dealers at their own wharves, the rest are for railroad docks where there is now detention for at least three weeks. The charges on these cargoes will therefore mount to high figures and there are more than a few large consumers railroads included, who regret following the broad advice given them a few short weeks ago. We understand there has been but one cargo of Southern coal shipped here on the order of Mr. Hoover's organization for distribution under direction of the Massachusetts Distributor, and on this one shipment not only have there been difficulties over landing the coal but the original applicants have in several instances canceled their orders.

Steam grades from central Pennsylvania are offering freely at prices up from $4.50 per net ton at the mines. Efforts to interest retail dealers' in screened bituminous have thus far met with meager results. Now that the press informs consumers that anthracite is being produced in volume it will take a touch of cold weather to make householders take notice. Pennsylvania operators are also apt to overlook the high rates that apply to New England points; in many cases the price asked for screened lump and egg makes the cost well in excess of what the companies are announcing their intention to charge for prepared anthracite.

At Boston, Providence, and Portland there is so much cargo coal awaiting discharge that consignees are naturally indisposed either to charter steamers or agree to receive further deliveries even on contract, and several bottoms are being tied up. Steamers that have been operating regularly for several months are now being laid up.

Cincinnati Gateway

Softness in Market Brings To Light More $5 Coal

Recession of $1 from Early in Previous Week—Railroads Now Turn Back Cars Shipped on Open Contract—Cincinnati Jobbers Undersold by Some Competing Fields.

A perceptible softness has developed to the market and as a result there is more $5 coal to be had, in small lots to be sure and for the lower grades, but this is in direct contrast to the price that was $1 higher early last week. The earmarks of the buyers' strike that could be seen last week became more and better defined. Perhaps the hardest blow of all is the fact that the railroads, which have been the heavy takers of coal, are now turning back cars that were being shipped on open contract. Lake buyers are proceeding cautiously and there is no longer a rush to complete cargoes.

More and more the Cincinnati jobbers are coming in contact with Ohio and Indiana as well as Illinois coal, and in many places these fields are underselling. Operators not shipping under Permit 1 bewail an ever-increasing car shortage.

LOW-VOLATILE FIELDS

Pocahontas and Tug River

Progress is being made by Pocahontas producers in speeding up production to some extent in view of more favorable transportation conditions prevailing on the N. & W. During the early part of September mines were getting as much as 75 per cent of allotment. Relief from the congestion which prevailed for a time is enabling the N. & W. to handle more coal westward. Tidewater is securing the bulk of the coal, with some moving northward by rail but with a prospect that such movement will cease with better anthracite production. Spot prices range $4.50@$5.25, but with comparatively little tonnage moving.

Under more favorable transportation conditions the Tug River field is now maintaining production at about 90,000 tons a week, which is considered normal. Western territory, to which much of the product of this field is usually shipped, is being opened up slightly. Prices are getting more stabilized, not ranging much above the Hoover maximum.

New River and the Gulf

Mines in the New River field are not getting a car supply of more than 32 per cent of the total to which they are entitled under their allotment. Transportation conditions are being slightly improved but the process is very slow.

Conditions in the Winding Gulf are much the same as in the New River region. Following an improvement in transportation conditions on the western end of the Virginian, however, a little more coal is being handled. There is an active market with the demand still in excess of the supply. What spot coal there is to be had is quoted $4.50@$5.50.

CINCINNATI

Small operators in the splint and gas districts have not awakened to the change in market conditions. They do not seem to realize that even though there is a tremendous shortage of coal the competition from other fields is increasing and there is only one thing that talks when the two meet on a common ground. Cincinnati jobbers, however, are fully aware of the situation and some of them already are reverting to tactics that mean sales.

Permit 1, by which certain mines are favored with either cars or billing, is the big problem. Some mines saw the light this week and as a result have been getting a good flow of empties. Others that could not square with the permits have been bewailing a shortage.

The smokeless situation seems to have hit the most even stride of all. Prices are balanced better with mine costs and orders are booked ahead with the hope that they will be caught up with some day. Orders for total shipment east still hamper some of the operators who were about to catch up with the orders ahead.

The retail situation has not varied since the last report. Most dealers are putting in only what will just run their customers instead of making an attempt to fill orders that have been on the books for months. Pocahontas lump sells $10.50@$11, mine run, $8.75@$9; bituminous lump, $8.75@$9; slack, $6.50@$7.

HIGH-VOLATILE FIELDS

Kanawha

Labor Day had a tendency to curtail production, although an accumulation of cars over the double holiday made it possible to make up for the loss later in the week. Open-shop mines continued to produce to a great extent on the holiday. The biggest handicap under which all operators are laboring is the car shortage. Not more than 20 or 25 per cent of the normal supply is being furnished. The car supply is a little better on the Kanawha & Michigan than on the C. & O. There is a strong demand for coal in all grades, but the difficulty is in getting orders in preferred classes, without which it is hard to secure cars.

Logan and Thacker

Not more than a third of the number of cars allotted to the Logan region are being actually furnished so that mines are limited to between 35 and 40 per cent of potential capacity. With so few cars available, mines having orders coming within certain classifications are of course being given preference and that is tending to disarrange marketing plans of producers. There is little or no spot coal available and much of the fuel shipped from the field is greatly delayed in reaching its destination.

More coal is being mined in the Kenova-Thacker field owing to a better run of cars. Labor Day made a little difference in the region, the only factor standing in the way of capacity production being a shortage of motive power and equipment. Railroad fuel loadings are large but there is also a heavy commercial movement to Western points when embargoes do not interfere. Most of the coal is moving under contract or preferential orders so that there is comparatively little free coal to be had.

Northeastern Kentucky

A heavier domestic demand is being reflected in a call for prepared sizes at the mines even with rather stiff prices prevailing, such as $6@$6.50. At the same time there is a firm demand for mine run, but screenings are not quite so active. Conditions have shifted and it is now a selling proposition with the mines instead of merely waiting for orders to turn up.

South

BIRMINGHAM

The market is fairly good. Demand from industrial users is general in character, but not insistent as heretofore. Mines have sufficient business in hand and being booked to take care of the output, but with any great relief in car supply and accelerated movement the activity will be further lessened. Bunker coal is in fair demand.

Priority in the use of cars has been annulled by the Public Service Commission, as Class 1 and 2 consumers were getting more coal than necessity warranted, while other classes were unable to get fuel account of cars not being available. Domestic sizes are somewhat scarce in the spot market and dealers are slowly stocking account poor transportation conditions.

Prices are practically stable on basis of the fair-price schedule, comparatively little coal being sold above the established figures, which is permissible on interstate business.

Car supply was somewhat better in the field the first of the week but grew worse during the last half—particularly on the Southern, where mines lost considerable time. On an average all lines probably furnished 60 per cent. A further decrease in production is not anticipated unless brought about by a more serious shortage of equipment.

VIRGINIA

Car shortage continues to curtail production. There has been a further loss of approximately 3 per cent owing to the inadequate transportation facilities, reducing the output to about 125,000 tons a week or little more than 51 per cent of capacity. There is an active market for coal but cars are difficult to obtain except where companies have shipments to make under certain preferred classes. Quotations range $4.50@$5.50 on mine run on a spot basis.

News Items From Field and Trade

ILLINOIS

Eugene McAuliffe, for five years president and general manager of the Union Colliery Co., with headquarters at St. Louis, resigned all connection with the company effective Sept. 11. **L. E. Young**, who has been associated with the company for some time, becomes general manager of the Kathleen Mine, in Jackson County, the company's main property. A new president has not yet been announced. Mr. McAuliffe, one of the best-known figures in the Midwestern coal industry, will remain in the coal business in a more important capacity, the nature of which will be made known soon. Despite the fact that he has been closely in the confidence of the present administration at Washington with respect to coal matters, he denies flatly that he is to receive any governmental or political appointment.

INDIANA

Articles of incorporation have been filed by the **Neal Coal Co.**, of Indianapolis, which recently bought the **F. W. Little Coal Co.**, owning two mines in Pike County, near Petersburg. The capital stock of the new company is given as $100,000. Banus E. Neal is president and Hermann E. Neal is secretary and treasurer.

The boiler room at the **Glencoe mine, No. 1**, formerly the Bement mine, east of Terre Haute, was burned recently. The loss includes part of the machinery, besides the building. The origin of the fire has not been determined.

The Columbus Coal Co., organized in Brazil, with A. L. Allais, of Chicago, and Thomas Grant, of Brazil, as the promoters, has bought the mine of the **McClelland Coal Co.** from the receiver. The mine is near Riley. Several of the leading stockholders are interested in the **Brazil Collieries Co.** and the **Bright Gem Coal Co.**, both of Indianapolis, and the company will establish combined offices in Terre Haute. Thomas Grant, of Brazil, will be manager of the three mines.

KENTUCKY

The Coal, Coke & Iron Ore Committee, Central Freight Association Territory, Pittsburgh, will hold a public hearing on the basis for rates on byproduct coke, carloads, to New Richmond, Ripley and Manchester, Ohio, from Ashland, Ky., to all points in Central Freight Association Territory. Rates to be established on the basis of 88c. per net ton over prevailing rates to New Richmond, Ripley and Trinity, Ky. Hearing will be held on Sept. 28, 1922, at 10:00 a.m.

NEW YORK

Alfred D. Thompson has been appointed vice-president of the Titan Fuel Co., 32 Broadway. Mr. Thompson will be in charge of sales for central and western New York and western New England, with offices in Utica. Until the end of August he was manager of bituminous coal sales for Pattison & Bowns, Inc., and has been identified with the trade since 1902.

OHIO

The Trojan Coal Co., Cincinnati, has been incorporated with a capital of $10,000 to job coal. The incorporators are Everett C. Kline, Robert D. Conway, George W. Hollis, J. F. Roberts and Chester H. Clark.

The States Coal Co., Columbus, has been chartered with a capital of $20,000 to do a general mining and wholesaling business. Incorporators are P. L. Weaver, T. H. Moore, K. W. Rittenhouse, C. F. Weaver and Bess Allen.

The Dudley Coal Co., W. S. Dudley, president, and the **Marion Coal Co.**, G. P. Morrison, president, have issued a card announcing that these concerns have purchased an interest in the **Kearns Coal Co.**, of Cincinnati, through whom they would market their coal in the future. Both have their offices in Lexington and mines in the Hazard field. S. S. Ashen, who was sales manager for the two companies, is now with the Kearns Coal Co., and is located at Lima.

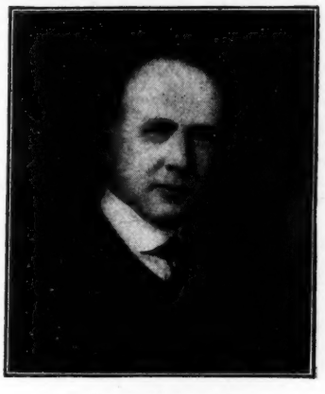
Jake Brady has been appointed general sales agent for Jewett Biglow & Brooks, according to an announcement issued by E. H. Jewett, the president of the company. Mr. Brady takes the place of **Louis Stone** who was in charge with headquarters in Cincinnati for several years. Mr. Stone is now connected with the Wallin's Creek Coal Co. Mr. Brady has been with "J.B.B." for the past five years and worked his way up from the sales force.

Dan Pritchard, of the Virginia Fuel Co. is at his home in Bramwell recuperating from an attack of penumonia and blood poisoning. Dan Pritchard, his brother and his father are forming a new company which will begin this fall on smokeless operations that have cost a half million.

The Bellevue Coal Co., Adena, has been chartered with a capital of $100,000 to mine coal in the eastern Ohio field. Incorporators are Lewis S. Moscrip, Lee D. Shearer, W. H. Bernhard, Henry Warner and H. M. Casper.

PENNSYLVANIA

The Jefferson Coal & Coke Co. was formed Sept. 1, and is a partnership composed of Messrs. Crawford, Cameron and Ashcom. It will sell the coal produced by the Jefferson Gas Coal Co., the Lindley Coal Co., and the Wet Branch Mining Co. The



N. C. ASHCOM,
General Sales Manager
Jefferson Coal & Coke Co.

gas coal company is located at Penowa, on the P. & W. Va. The Lindley company is located at Houston, on the Pan Handle Division of the Pennsylvania. The Wet Branch company operates Wet Branch Nos. 1 and 2 mines on the Cabin Creek Division of the C. & O.

The Dauphin County Court, on Sept. 12, heard appeals from the **State anthracite coal tax**, amounting to many hundreds of thousands of dollars and based on the claim that the law is not only unconstitutional but that its provisions are impossible to carry out. The Watson group of companies owe, under the law, approximately $20,000. The Philadelphia & Reading group of thirty-six collieries has been taxed $477,619, and these cases were called for hearing. Other companies figuring in the day's proceedings were the Lehigh Coal & Navigation Co., $142,999; Cranberry Creek, $35,670 and the Alliance Company, $6,174. Other cases will be heard on Oct. 17.

W. L. Connell, prominent independent coal operator and former mayor of Scranton, has been seriously ill. A complete rest has been ordered by his physician. During the negotiations with the anthracite mine workers, Mr. Connell represented the independent coal operators on the policy committee of the operators. As a result he is in a run-down condition.

A strike of several hundred union men of the Eriton mines developed in protest over alleged discrimination in the awarding of "places" to the workmen. The strike is said to be an indirect outgrowth of the change in the management of the Eriton plant. Heretofore the **Northwestern Mining & Exchange Co.** has maintained a machine shop, but this is done away with by the **Peabody Coal Co.**, which is now supervising production, and about 30 outside men were thrown out of their positions by the closing of the machine shops.

At a meeting of the board of directors of the First National Bank at Cresson, Cambria County, **C. Law Watkins** was elected to the directorate to fill the vacancy caused by the death of Edward O'Brien. Mr. Watkins is vice-president and general manager of the Pennsylvania Coal & Coke Corporation and president of the Watkins Coal Co., at Barnesboro.

Coal briquet manufacturers in the anthracite region of Pennsylvania have raised questions relative to the right of the State to tax their product. The anthracite tax has been assessed against briquets by Auditor General Samuel S. Lewis and the manufacturers will probably take appeals to the Dauphin County Court, at Harrisburg. It is also likely that certain questions relative to washery plants will be carried to court for decision as the auditor general has held that coal production is taxable where it is prepared for the market.

WASHINGTON

Earl McMillan, a mining engineer on the staff of the Bureau of Mines who has been conducting coal washing tests at Seattle, has resigned to enter consulting practice with George W. Evans, in Seattle. He will complete, however, the tests in which the Bureau of Mines, the University of Washington and the Washington Coal Operators' Association are co-operating. Mr. McMillan has been in charge of extensive investigations for the Bureau of Mines in Washington, Oregon and Alaska. He will continue with the Bureau in a consulting capacity.

WEST VIRGINIA

The property of the **North American Coal Co.** in Monongalia County, has been taken over by the **Chaplin Collieries Co.** interests. The North American company was owned and operated by A. P. Flagler and Louis H. Brown of New York, and its general manager was C. D. Junkins, who will be continued in that capacity by the new owners. The North American company was among the first to open a mine on the Monongahela, beginning operations in 1915. **The Fiedler Coal & Coke Co.** of Morgantown will handle the output of the concern.

Plans have been completed for the purchase by the **Brady-Warner Coal Corporation**, of Fairmont, of 10,000 acres of coal land in Clay County, as heretofore chronicled in this correspondence. This land is owned by the **Elliott-Splint Coal Co.** The coal is in the Kanawha series.

Suits in unlawful detainer have been brought by the **West Virginia Coal & Coke Co.** against about fifty-five miners and their families at Coalton, where operations have been resumed by the company on an open-shop basis. The case was originally set for a hearing on Sept. 7 but was continued at that time for one week. Suit brought by the same company to obtain possession of company houses at Norton was compromised, the miners confessing judgment and agreeing to vacate on Sept. 15.

Coal is to be produced by the **Co-Operative Gas Coal Co.**, of Morgantown, this company being capitalized at $250,000. Having an active part in effecting the preliminary organization of this concern were: J. P. Wolf and Herman Kammerer of Morgantown; John A. Sander of Listenburg, Pa., and John Vargo and John Hornyak of Farmington, W. Va.

The Robinson Coal Co. has moved from the Deveny Building, at Fairmont to the C. & M. Bldg., in the same city. Clarence D. Robinson is president of this company.

The Rivesville Coal Co. will operate near Rivesville, having obtained from Frank Hood and others a lease on approximately thirty-five acres of Sewickley coal land.

WISCONSIN

The Fellenz Coal and Dock Co., Milwaukee, have elected as directors Frank W. Fellenz, Edwin C. Lambrecht, Charles D. Weeks, T. H. Spence and E. A. Reddeman. The company is installing an electrically-operated steel unloading bridge with a 3-ton clamshell and is also increasing the capacity of its hard-coal shed.

The Wisconsin Coal & Products Co. has been formed in Milwaukee; $15,000 capital by Joseph A. Barly, William W. Davies, and Martin P. Wendt.

Traffic News

The Pennsylvania Railroad asks the cooperation of shippers on its line to the following extent: Whenever possible, in the interest of maximum service, the loading of H-21-A and H-25 cars, marked capacity 140,000 pounds, be confined to places on the Pennsylvania System, preferably to the coal piers at South Amboy, N. J., Greenwich (Philadelphia, Pa.), Canton (Baltimore, Md.), Cleveland and Ashtabula, Ohio, or Erie, Pa., where rapid transshipment facilities for delivery to boats enable these cars to be unloaded and quickly returned to the mines. Do not load H-21-A or H-25 type cars, marked capacity 140,000 pounds, with railroad fuel or supply coal consigned to any railroad other than Pennsylvania System, if other suitable cars are available.

To avoid congestion and permit prompt movement of anthracite, the **Lehigh Valley R. R. Co.** has placed an embargo against all eastbound carload from all connections at all junctions for all destinations beyond the rails of that road, except food for human and animal consumption, livestock, poultry, perishable products, coal, coke, fuel oil, coal mine supplies for current operations, newsprint paper, nursery stock. seeds, fertilizers, and railroad material.

The case of the **Hartland Railroad Co.**, a short-line road on Elk River, against the **Baltimore & Ohio and other railroads**, was heard by the I. C. C. early in September. The case involves a division of rates received for the transportation of coal and a division of joint rates to the plaintiff company. That company it is claimed is not receiving a fair division of rates while it is obliged to haul coal out of the fields east of Charleston to the lines of other railroads. There were two interveners supporting the contentions of the Hartland company, such interveners being the **Hartland Colliery Co.**, and the **Middle Creek Coal Co.**, both of whom are on the line of the Hartland.

The West Virginia Public Service Commission is continuing at Charleston its hearings on intrastate freight rates particularly as applied to coal and more particularly as affecting short-haul coal rates in the Fairmont, Clarksburg and Morgantown districts.

The Hoosier Lime Co., of Salem, Ind., attacks as unreasonable the rates on coal from Victoria and Midland, Ind., to Salem.

In the case involving coal rates from the Southwest to Omaha, the **Illinois Coal Traffic Bureau** requests the commission to decide that the present rate adjustment as between Illinois and Southwestern fields is not discriminatory and that the proposed reduced rates have not been justified. **The Fifth and Ninth Districts Coal Bureau** requests the commission to refuse to permit the proposed reductions without corresponding reductions from the Illinois groups. **The Oklahoma Coal Operators' Association** says that that State is prejudiced and placed at a disadvantage by the present rates and that the proposed rates should be made effective. The railroads involved request that the proposed reductions be not allowed.

Association Activities

Oklahoma Coal Operators' Association

At the annual meeting of the association held at McAlester, Dan McAlpin, of Haileyville, was re-elected president; Wm. Speckleberg, Henryetta, vice-president; A. C. Casey, McAlester, secretary-treasurer, and J. B. Wilson, McAlester, commissioner. Preparations had been in progress at the mines of the members for several days so that all operations are expected to be working in full blast at an early date.

National Coal Association

The Publicity Committee of the association, appointed as of June 1, 1922, is composed of the following: Bockus, C. E. (chairman), president, Clinchfield Coal Corporation, N. Y. City. Barnum, Walter, treasurer, Pacific Coast Co., 50 Church St., New York City. Cunningham, W. H., president, Cunningham, Miller & Enslow, Huntington, W. Va. Dickinson, C. C., president, Dry Branch Coal Co., Charleston, W. Va. Donaldson, John A., vice-president, Pittsburgh Coal Co., Pittsburgh. Douglass, E. L., vice-president, First Creek Mining Co., Cincinnati. Honnold, F. C., secretary, Coal Operators' Associations, Chicago. Lukins, F. W., president and general manager, Farmers' Fuel Co., Kansas City, Mo. Robbins, S. H., president, Youghiogheny & Ohio Coal Co., Cleveland. Taylor, H. N., vice-president, Central Coal & Coke Co., Kansas City, Mo. Watkins, T. H., president, Pennsylvania Coal & Coke Corp., New York City. Davis, T. B., president, Island Creek Coal Co., New York City. Harrington, Geo. B., Chicago, Wilmington & Franklin Coal Co., Chicago. Kavanaugh, W. K., president, Southern Coal, Coke & Mining Co., St. Louis. Ramsay, Erskine, first vice-president, Pratt Consolidated Coal Co., Birmingham, Ala. White, E. E., president, E. E. White Coal Co., Glen White, W. Va. Lanier, M. B., president, Empire Coal Co., Birmingham.

Trade Literature

Elecso Superheaters. The Superheater Co., New York, N. Y. Bulletin T-1. Pp. 8; 8 x 10 in; illustrated. Among the advantages claimed for these superheaters are their suitability for application to all types of boilers, freedom from leaks, ease of application and accessibility for inspection and repairs.—Advertiser.

Powdered Coal Application to Four 2,640-hp. Boilers. This is the title of a paper presented by H. D. Savage before the Mechanical Section of the Engineers' Society of Western Pennsylvania, at Pittsburgh, Pa., Feb. 1., and is incorporated in a bulletin published by the Combustion Engineering Corp., New York, together with some later data on the operation of this installation for a year or more.—Advertiser.

Regulating Boiler Feed Water. Northern Equipment Co., Erie, Pa. Pp. 20; 8 x 10 in.; illustrated. The first part of this booklet is devoted to an article reprinted from Power Plant Engineering, next is an analysis of a regulator that meets the most exacting requirements, and finally are charts showing how the various service requirements are met.

The following bulletins on lighting have been gotten out by the **Edison Lamp Works of the General Electric Co.** Bulletin L. D. 102A describes effect of color of walls and ceilings on resultant illumination; Bulletin L. D. 138 contains information on fundamentals of projection, and Bulletin L. D. 139 is on the lighting of small stores. These are all 6 x 9 in., illustrated.—Advertiser.

Pure Malleable Nickel. American Nickel Corp., Clearfield, Pa. Pp. 12; 8 x 11 in.; illustrated. A résumé of the properties and uses of the malleable nickel manufactured by this company.

Obituary

David W. Hann, a coal operator near Cayuga, Ind., died recently in a hospital at Danville, Ill., as a result of burns received when rescuing his four children from his home that was wrecked by the explosion of a can of blasting powder some of which his nine-year-old son threw on a hot stove.

William G. Pritchard, head of the Virginia Fuel Co., and connected with several mining interests in West Virginia, died on Sept. 10. Mr. Pritchard was one of the best known men in the splint fields of the southwestern section of West Virginia.

A report from Knoxville, Tenn., stated that **Daniel Cooper Swab**, of Middlesboro, Ky., 51 years of age, coal operator, politician and prominent business man, was found dead of heart trouble in his room at a hotel there.

The Birmingham district has lost two prominent men in the coal mining industry. **Harry E. Fleetwood**, superintendent of the Burnwell Coal Mining Co., Burnwell, Ala. died at the Inge-Bondurant Sanatorium, Mobile, where he had been undergoing treatment for some time. Mr. Fleetwood was widely known and his death will be keenly felt among his large circle of friends. **R. L. Williamson**, superintendent of the Dora Fuel Co., for some time, and prior to that time connected with the Empire Coal Co. for about thirty-five years, died at his home in Birmingham. Mr. Williamson was one of the pioneer mining men of the district.

Recent Patents

Coal-Cutting Machine. Arthur Russell, Hucknall, England, 1,414,586. May 2, 1922. Filed April 16, 1920; serial No. 374,357.

Controller and Synchronous Motors. Edwin W. Seeger, Milwaukee, Mis., assignor to the Cutler-Hammer Mfg. Co., Milwaukee, 1,414,791. May 2, 1922. Filed Feb. 12, 1921; serial No. 444,399.

Automatic Mine-Car Door Opener. Fasten Szemanske, Parsons, Pa., 1,414,760. May 2, 1922. Filed Dec. 1, 1920; serial No. 427,465.

Shoveling Machine. Howard B. Dennis, Grass Valley, Calif., assignor of one-fourth to F. W. Nobs and one-fourth to G. W. Starr, Grass Valley, Cal., 1,414,398. May 2, 1922. Filed May 1, 1919; serial No. 295,292.

Coal-Pushing Device. James M. Johnson, Mobile, Ala., 1,411,105. March 27, 1922. Filed April 25, 1921; serial No. 464,344.

Coal Pocket. Howard M. Sankey, Alliance, Ohio, 1,411,190. March 28, 1922. Filed Jan. 9, 1920; serial No. 350,329.

Coal-Loading Machine. Norton A. Newdick, Columbus, Ohio, assignor to James E. Jones, Switchback, West Va., 1,413,128. April 18, 1922. Filed Aug. 24, 1918; serial No. 251,330.

Mine-Door Operating Mechanism. William Kortkamp, Hillsboro, Ill., 1,413,335. April 18, 1922. Filed Sept. 30, 1921; serial No. 504,352.

Apron-Feed Loader for Skip Hoists. William E. Hale, Fort Washington, Pa., assignor to the R. H. Beaumont Co., Philadelphia, Pa., 1,413,401. April 18, 1922. Filed May 18, 1921; serial No. 470,501.

Coal Agitator for Mechanical Stokers. Robert S. Riley, Worcester, Mass., assignor to the Sanford Riley Stoker Co., Worcester, Mass., 1,413,428. April 18, 1922. Filed Oct. 28, 1919; serial No. 333,917.

Gasification of Coal and Obtaining of By-products. Charles H. Smith, Short Hills, N. J., assignor to the International Coal Products Corp., Richmond, Va., 1,413,799. April 25, 1922. Filed Feb. 16, 1918; serial No. 217,469.

Plant for and Method of Treating Coal. Charles H. Smith, Short Hills, N. J., assignor to International Coal Products Corp., Richmond, Va., 1,414,223. April 25, 1922. Filed April 3, 1918; serial No. 226,409.

Coming Meetings

Kentucky Mining Institute will hold its annual meeting Nov. 3 and 4 at Seeback Hotel, Louisville, Ky. Secretary, Elizabeth C. Rogers, Lexington, Ky.

The National Industrial Traffic League will hold its annual meeting Nov. 15 and 16 at the Hotel Commodore, New York City. Secretary, J. H. Beek, Chicago, Ill.

Coal Mining Institute of America will meet Dec. 13, 14 and 15 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., 911 Chamber of Commerce Bldg., Pittsburgh, Pa.

Alabama Mining Institute will hold its next meeting Oct. 3 at Birmingham, Ala. Secretary, J. L. Davidson, Birmingham, Ala.

Coal and Industrial Exposition under the auspices of the Huntington Chamber of Commerce will be held Sept. 18-23 in the Chamber of Commerce Bldg., Huntington, W. Va.

American Mining Congress. Twenty-fifth annual convention and exposition of mines and mine equipment will be held at Public Hall, Cleveland, Ohio, Oct. 9-14. Executive offices, the Hollenden Hotel; E. C. Porter, convention manager.

National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York City, Dec. 7-13. Manager, Charles F. Roth, Grand Central Palace, New York City.

American Institute of Mining and Metallurgical Engineers will hold its fall meeting during the week of Sept. 25 at San Francisco, Cal. Secretary, F. F. Sharpless, Engineering Societies Building, New York City.

American Gas Association will hold its annual meeting Oct. 23-28 at Atlantic City, N. J. Secretary-Manager Oscar H. Fogg, 130 East 15th Street, New York City.

Canadian Institute of Mining and Metallurgy, annual Western meeting Nov. 15-17, at Vancouver, B. C. Secretary-Treasurer, G. C. Mackenzie, Montreal, Quebec, Can.